THE

REVENUE REGISTER.

No. 2.] MADRAS:—TUESDAY, FEBRUARY 15, 1876. [Vol. X.

THE INDIAN AGRICULTURIST.

In our impression for January we published the short introductory article of the new publication whose name appears at the head of our column. We say the new publication, but it is in very deed an old friend with a new face. The *Indian Agriculturist* fills up the gap left by the discontinuance of the *Agricultural Gazette*, whose cessation in March last was so widely regretted. The *Indian Agriculturist* appears to us to combine the advantages, in a more convenient form, of the *Indian Economist*, the *Agricultural Gazette*, and the *Statistical Reporter*. Though published in Calcutta, the journal should enjoy a more than local circulation, inasmuch as it deals with widespread interests. In its pages we find information, or advice, touching the agricultural interests of places so widely separated as France and China, the Punjab and Coorg, Allahabad and Wynaad. Nor is the range of subjects less extensive in its way than the geographical; for we find articles, letters, and notes on the sunflower as a prophylactic to miasmatic fever, on the new silk mill in Bombay, on agricultural banks, on horse breeding, on our fauna and flora, and many other most useful, but widely separated, subjects. It would be impossible, even were it not undesirable, for us to write a review, in the ordinary acceptation of the term, on the contents of so multifarious a publication; but perhaps a notice of one or two of the most interesting of the papers may not come amiss to our readers, and may lead them to become subscribers to a most useful and interesting periodical.

The first article is on the sunflower plant; from it we learn that its cultivation has engaged a considerable amount of attention since 1869, when Mr. Buckland, Commissioner of the Burdwan division, drew the attention of the local Government to an extract from the *Pall Mall Gazette*, in which the cultivation of this handsome, though somewhat gaudy, plant was strongly recommended to the inhabitants of the Fens as a prophylactic against malarial fever. The recommendation was strongly supported by the experience of its virtues in Holland, a country which, from physical peculiarities, would be particularly liable to miasmatic influences. Subsequently we are told the Government of India made various enquiries, more especially of the Governments of France and Holland, but elicited no satisfactory information. The *Pall Mall Gazette* recurred to the subject in 1871, and quoted the case of a Dutchman, Van Alstein, who lived on the banks of the Scheldt, and had protected his household from malarial fever for ten years through the agency of the

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sunflower; while his neighbours, who either knew not, or cared not for, so simple a remedy, suffered as usual. After this many experiments were tried with the view of ascertaining whether the cultivation of the sunflower was likely to prove remunerative from a commercial point of view. That it yields a fine limpid oil, suitable for culinary and lighting purposes, may be now taken as proven; but not so the important question whether it can be done at a profit. Oil cake too is produced of a good quality and readily eaten by cattle. The desideratum now appears to be to find machinery suitable for expressing the oil in a cheap and effective way. This article certainly points to two good results—1st, the cultivation of the *Helianthus annuus* as a prophylactic in fever-stricken districts; and 2nd, as a possibly lucrative commercial speculation. Let us hope that the desired machinery may soon be brought to bear; but meanwhile, why wait for financial profits while our people are dying of fever? Fever, in its quiet, unostentatious, way kills more people annually than does the much-dreaded cholera; yet, while we should think nothing too costly, or too troublesome, to secure us against the latter grim destroyer, we wait to ascertain what direct profit we can make out of a simple and inexpensive safeguard against the less frightful but not less fatal fever. Surely this is questionable economy. We would venture to suggest that the attention of our provincial authorities, and the Traffic Departments of the various Railways, be called to this subject. The officers of the Railway might do much, for there is a nice garden attached to almost every station along the various lines, and the stations have an inherent power of collecting around them a sort of hamlet, consisting mainly of the houses of Railway employés and their families, who frequently suffer grievously from fever.

In the portion of *The Agriculturist* called the Planter's Gazette, we read with deep interest a paper on "Indian Tea." From it we find, what no doubt many of our readers know already, that there is an indigenous Indian Tea plant. It is, however, probably not so well known that this plant was discovered more than forty years ago in the jungles of Assam. About the same time, unfortunately for the early prosperity of tea planters, the Government of India imported tea seeds from China, and with great care, and at immense expense, transported the seedling plants to Kumaon and Assam. When the existence of indigenous tea became known, it was naturally at first unwelcome news, and vested interests were anxious to make out that, even were the plant a tea plant at all, its produce was so inferior as to be unfit for use. This was long ago, and we are told that the indigenous plant has fought its way so well that "the price of teas in the London market may therefore be roughly classed in the following order as to value:—

a. Assam indigenous.

b. Hybrid of a high class, that is, more indigenous than China.

c. Hybrid of a low class, that is, more China than indigenous.

d. China kind produced in India.

e. China kind produced in China."

The concluding paragraph of the article will be particularly grateful to the hearts of those who are the possessors of tea gardens. "The tea industry in India, though still quite in its infancy, is a great fact. The imports from there into Great Britain, though only about a seventh of what comes from China to-day, will probably in a few years equal, if not exceed it; and as the events of the last few years have proved that a better investment for capital than tea in India does not exist, the subject is

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one of paramount importance to the commercial and thinking public."

From these brief notes we hope our readers will be lead to read the *Indian Agriculturist* themselves. We would specially commend it to the attention of Revenue officers and self-working planters and farmers.

CORRESPONDENCE.

LONDON LIFE.

[From our Special Correspondent.]

Sir,

The first three quarters of the nineteenth century are consigned to the limbo of the past, and a new year is before us. Should the next five lustra prove as prolific and progressive as their predecessors, it is almost beyond human intelligence to conjecture what will be the state of society and civilisation in the year of Grace 1900. Public opinion matures, science advances with "leaps and bounds," empires are convulsed, dynasties overthrown, sceptics crop up and thrive, those around us are given in marriage and die off, new intellects are daily born into the world, and so life goes on. Who shall say what twenty-five more years may do for this country, and for the universe? With the recollection of the greatest minister that ever lived,—William Pitt,—may we not even contemplate the possibility that this very day a child may be launched into this "sea of troubles," who will wisely rule or rashly revolutionise the mighty Empire "on which the sun never sets" ere the dawn of the twentieth century. It would take pages, nay volumes even, to epitomise the rapid sequence of events, the curious changes, and the powerful media for good and for evil which we have all witnessed since 1850. The millennium of peace at that time so hopefully anticipated, lasted but three short years, and the political horizon presents clouds which peremptorily forbid all conclusions that "peace on earth and good will" are at hand. Germany and France have changed places; the atrocities of Napoleon in Berlin have been cruelly avenged in Paris; and notwithstanding the marvellous financial elasticity of La Belle France and the lively fascinations of her capital and people, in spite of the attractions which render the city on the Seine the metropolis of Europe, years must elapse before it will be competent to say of her, *Græcia capta ferum victorem cepit;* so bitter is the animosity between the Teuton and the Gaul! We have had our little wars; our soldiers and sailors have always behaved with that endurance, gallantry, and self-sacrifice which are synonymous with the name of Briton—witness India, Abyssinia and Ashantee—but England has no longer the mighty influence in the Councils of Europe which she possessed in 1850. Strange doctrines too have convulsed the religious world during the last quarter of a century. In 1850 Colenso was not known, Voysey was comparatively in his cradle, Puseyism was fashionable, but its exaggeration, Ritualism, had not been developed. Mackonochie and Purchas were in embryo. We had not in those days such a choice variety of religious "pabulum;" now the popular preachers advertise their wares in the evening papers of Saturday, and a speculative enquirer may improve his Sunday morning with any phase of so-called religious thought. Atheism, Theism, Rationalism, Scepticism, Anglicanism, Roman Catholicism, Presbyterianism, and fifty other "isms" all have their temples, and at no period in history has the truly religious and God-fearing man found so many stumbling-blocks strewn in his wished-for path to heaven. Parliamentary reform has been active likewise during the last ten years and the "residuum" votes. Mr. Disraeli's "liberal" views on the subject of electoral qualifications are almost enough to summon the perturbed spirit of his friend and patron Lord George Bentinck from Hades. It is impossible to enumerate the discoveries of science which have enriched mankind during the years over which our retrospect is directed. Art, surgery, telegraphy, locomotion, physiology, zoology, and topographic discovery have all been developed with lightning speed, and human

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knowledge has generally increased in a ratio wholly disproportionate to anything previously known. Whether this rapid "ripening" (if I may use the word) of mundane affairs points to a crisis in the universe is too abstruse a subject to discuss in your columns; but, should Providence allow human intellects to continue the improvements and discoveries which it has been vouchsafed to them to make since 1850, I see no reason why time and space should not be even more completely annihilated than they are now. In 1900 or 1925 (which latter date many now existent will live to see) shall we be holding friendly intercourse with our cousins in the moon? Shall we take a trip to New York in the same time as we go to Margate? Shall we employ balloons instead of bicycles? Shall we have a sensible and unbigoted School Board? Shall we have unpaid magistrates who are not absolute idiots? *Quien Sabe?* Of a truth the past twenty-five years, and the same number of which the events are still hid in the womb of the future, afford material for much serious reflection and much anxious speculation.

The close of the year has been marked by three strange calamities, involving terrible loss of life, and in one case indicating a measure of human depravity almost incredible. An emigrant ship was loading at Bremer Haven, the decks and quays were crowded with the future exiles and their relatives, a busy scene of cheerful labour dashed with parting sorrow was there, when suddenly, without a moment's warning, a terrific explosion was heard, and the dead and dying lay scattered around in shapeless gory heaps. A package of dynamite, or some similar fearful compound, had ignited, and hence the unparalleled disaster. The fatality would have been sufficiently deplorable had it been one of those accidents which the Deity in his all-seeing wisdom permits to afflict humanity from time to time; but enquiry revealed the fact that a fiend in human shape had devised this infernal machine with the deliberate intention of annihilating the vessel and all its living freight. The greed of gain had sharpened his intellect, and with the aid of science he had constructed a deadly torpedo which, by the action of clockwork, should blow up the ship in mid ocean; he would then have claimed the heavy insurances which he had made on the vessel and cargo. By some miscalculation the explosion took place prematurely. The miscreant committed suicide, but confessed before he died. As he is now dead, he is beyond the reach of human retribution; but if there is a place of torment in the world to come, he of all men is likely to be found there. It is currently reported and believed that this is not an isolated case. Many ships that have "never been heard of" after sailing (like the *City of Boston*), may have been disposed of in this fashion; and it is far from pleasant to cogitate on the fact that when one embarks on a sea voyage, the perils of the deep are as nothing compared to the possible destruction buried in the hold.

The other disasters I have to chronicle present redeeming features. Two training ships have been destroyed by fire in the river Thames. Some of your readers may ask, "what is a training ship"? Certain philanthropical societies originated the idea of picking up indigent and homeless boys in the streets of London, waifs and strays, the arabs of society, and training them for seamen in the Royal Navy and Merchant Service. Thousands of poor lads have been rescued from misery and crime by this agency, and the Admiralty has from time to time granted useless "men of war" to be converted into training ships. Last week, two of these, the *Goliath* and the *Warspite*, were totally burnt; the former by the accidental upsetting of a paraffin lamp, the latter by, it is supposed, an act of incendiarism. In the former, sad to say, between twenty and thirty lives were lost, in the latter there was no casualty. "Experience teaches," and "The proof of the pudding is in the eating." When the *Vanguard* was rammed and sunk by the *Iron Duke*, the power of the ram was demonstrated, but the "pudding eaten" was an expensive dish. When the *Goliath* and the *Warspite* went to the bottom of the river in a lurid blaze of fire, the noble conduct of the boys, their calmness, discipline, courage, and self-reliance

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were amply proved, but they cost the country nothing. Individual acts of heroism in the rescue of comrades occurred which are beyond praise, and had it been necessary, I doubt not that these youthful paladins would have met their fate with as much resignation and stoicism as the troops on board the ill-fated and never to be forgotten *Birkenhead*. And it must be remembered that these young gentlemen are what the world calls "gutter children;" orphans many of them, others deserted by needy or unnatural parents. Is not a training ship then a great institution? Should not the charity of the wealthy be directed into such a profitable channel? If we can diminish pauperism and crime, and simultaneously train the sailors, of whom there is such a dearth, can we hesitate? The Admiralty has promptly offered to supply ships in place of those which have perished, and funds are being rapidly subscribed to fit them up in the proper manner. If any of your readers have more rupees than they know what to do with, they might do worse than remit a score to the Royal Marine Society.

With our Prince of Wales in Hindustan and his royal consort in Denmark, with the Duke and Duchess of Edinburgh rusticating in Kent and the Queen in seclusion at Osborne, and Prince Leopold in strict retirement at his residence in Wiltshire, the Metropolis is tolerably dull; but Her Majesty's lieges have just been gratified by an official announcement that she will open Parliament in person on 8th February, a ceremonial in which she has not participated since 1871.

The Queen has been so long in retirement, and so rarely gladdens the hearts of the people with her presence in public, that any monarch less esteemed and beloved by her subjects might have become estranged from them; but the English are so loyal, and Her Majesty is so universally esteemed for her private worth, that such a contingency could never happen. Not the less cordially, however, will her reappearance be welcomed, and her self-denial is the more appreciated owing to the prolonged absence of the Heir Apparent. It is universally hoped that her health will permit her to continue the course with which she promises to inaugurate the Session.

Turkey continues to be a defaulter, and her financial prospects are as dismal as ever. The numerous bond-holders here and on the Continent appear unable to hit upon any united plan of action; and whilst they are arguing and quarrelling among themselves as to priority of rights and other details, the apathetic advisers of the Porte twiddle their thumbs and envisage the situation with true Oriental complacency. The great fact remains, that Turkish securities are depreciated 50 per cent, and there is every probability that the worst point has not yet been reached. No one knows what course the great Powers will adopt, and it is idle to speculate on what projects are entertained by the leading diplomatists at St. Petersburg, Vienna and Berlin; but if Lord Derby continues in office, England will assuredly have a "finger in the pie," and, if the Christmas bird is to be cooked and cut up, the "chef" in Downing Street will be in the kitchen to concoct the sauce, and if requisite, to claim a slice of the breast. Egypt is likewise involved in a financial crisis, and Mr. Cave, M. P., a gentleman of great talent and aptitude for accounts, has been deputed by our Government to assist the Khedive in setting his house in order. He has been at Cairo about three weeks, and sundry sensational telegrams periodically arrive in London announcing that he has quarrelled with the Viceroy, that he finds the exchequer in hopeless confusion, that he means to return instanter *re infectâ* and similar *canards*; but these are understood to be Stock Exchange "dodges," worked by the "Bulls" and the "Bears" in Capel Court, and the public will learn nothing worthy of credence until Mr. Cave himself thinks fit to issue his report. It is pretty certain that his task is both difficult and delicate; although he has no "Harem" to contend against—which institution is so potent in hatching intrigues at Constantinople—he must be prepared for innumerable official obstructions on the part of the "hangers on" at the Vice-regal Court, who live a life of luxury and idleness at their Royal Master's

expense, and who have everything to lose and nothing to gain by a searching enquiry into the maladministration of the Egyptian revenues. "Backsheesh" is the shibboleth of the nation, and when that glorious institution is curtailed or abolished, ministers and officials, both primary and subordinate, will in many quarters find, like Othello, their "occupation gone." The Khedive is an energetic and practical man, but he is proud, and *tant soit peu* obstinate. If he has self-command enough to take in good part Mr. Cave's advice, which is sure to be tendered with deference and tact, there may be a great future for Egypt. If he "flares up" *delenda est* Cairo. Our volatile neighbours in France continue tranquil; the little outburst of temper, arising from wounded *amour-propre*, which took place when the purchase of the Suez Canal shares by the British Government was so suddenly announced, has passed off; and, in spite of some inflammatory and pseudo patriotic effusions of the Parisian press, all decent Frenchmen now recognise that the bargain was not prompted by any desire for territorial aggrandisement on our part, and they realise the fact that the possession of 177,000 Suez Canal shares in no way affects our political status on the banks of the Nile. The special telegraphic wire monopolised by the *Times* newspaper, frequently announces a ministerial crisis at Versailles; but nothing serious ensues, and Marshal McMahon has a good chance of completing his "Septennate" in peace. Prince Bismark appears to have retired into private life, but no one can tell what mighty projects may be seething in his astute brain. "Still waters run deep," and he may at any moment emerge from his studio, "cry havoc, and let slip the dogs of war." He is still, to all intents and purposes, the arbiter of Europe; but he understands mankind in general and his own countrymen in particular; he knows that for the nonce they are satiated with blood and iron and glory, and having thrashed their old enemies, are yielding to their commercial instincts and love of Fatherland, and by no means desirous of a fresh campaign.

The great "George Washington," towards the close of the last century, wrote the following lines to a friend: "You will act very prudently "in having your will revised by some person "skilled in the law, as a testator's intentions "are often defeated by different interpretations "of statutes, which require the whole business "of a man's life to be perfectly conversant with "them." Very sound advice, when we consider that the late Lord Westbury, High Chancellor of England, drew his own will and managed to intimate his intentions so hazily, that all the lawyers in the land could not satisfactorily decide as to the disposition of his property. Again, the other day the gentlemen of the long robe were engaged for upwards of a week in unravelling the meshes of a testamentary document executed by Lord St. Leonards, another ex-Chancellor. He was a very aged man, and made many wills and codicils, and when he "shuffled off this mortal coil," no one seemed to know which was the right will, and certain parties upheld the existence of a document which could not be found. These latter succeeded in establishing their contention; and in giving judgment, the learned functionary on the bench drew attention to the existence of a public office in which wills could be deposited and registered, and he pointed out how desirable it was that testators should avail themselves of the privilege. When we consider how much family discord may be caused, and how much expense incurred owing to the disappearance, more or less mysterious, of a rich man's will, it seems strange that the facilities offered for avoiding such a mischance should be so generally neglected.

Time has sped so rapidly that, although it seems but yesterday that the Prince of Wales quitted these shores, yet by the time these lines are in print we shall be making preparations to welcome him back to England. His future subjects here take the greatest interest in his progress, and are much gratified by the noble reception accorded to him throughout the Indian Empire. How tame and humdrum he will find the metropolis and its denizens after all the novelty, the splendour, the pomp and circumstance of the gorgeous East! Some

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censorious critics, who are always on the *qui-vive* to pick a hole in any one's behaviour,—the more exalted the personage the better—have caviled at the Prince's attendance at wild beast fights and at the ballets of nautch girls; but as the old saying runs, "When one is at Rome one must do as Rome does," and I for one think that he was right to see all the native customs and amusements. Some great man has laid it down that every Englishman is bound to visit the House of Commons and witness a prize fight *once*. I have done both, and never wish to repeat the dose. I fancy His Royal Highness takes the same view of cheetah hunting, rhinoceros contests, and nautch dances. The newspaper correspondents furnish us with voluminous descriptive accounts of his minutest movements, and it is gratifying to read the warm eulogiums bestowed on him by the "Special" of the French newspaper the *Temps*; and that gentleman is not less earnest in his grateful acknowledgment of the extreme kindness and hospitality which has been extended to him by every class of Englishmen in India.

The resignation of Lord Northbrook has been long expected, but that his successor would be Lord Lytton no one anticipated; in fact it was generally assumed as a matter of course that the Duke of Buckingham would be "translated" from Madras to Calcutta. But Mr. Disraeli is rather fond of straying out of beaten tracks, and we must do him the justice to avow that although some of his appointments may at first have seemed peculiar, they invariably turn out well. What an outcry was raised when Lord Mayo was made Viceroy! What a storm of abuse assailed the Prime Minister and his nominee! How unanimous were the "bitter scribblers" (as the lamented statesman himself termed them) in proclaiming his incapacity, and stigmatising his selection as a flagrant job! What was the result? No more popular or more signally competent man ever sat in the Vice-regal chair, and in one brief twelvemonth all the radical and so-called liberal journals, from the *Times* down to the *Echo*, had to eat their words. The recollection of their humiliation on that occasion now curbs their fiery pens, and so Lord Lytton's appointment is treated with "bated breath." His Lordship is but five and forty years of age, but he has a certain reputation both as a diplomatist and a *litterateur*, and it is not presumptuous to infer talents of a high order in a man who is the son of the author of "Pelham" and "My Novel," and the nephew of Lord Dalling, a statesman well versed in Oriental diplomacy. Lord Lytton is now on his way home from Lisbon, and will enter on his new office in about three months' time; for the sake of India we hope his rule will prove as beneficent as that of his Conservative predecessor.

The festive season of Christmas has come and gone. The plum-pudding and mince pies are eaten; the indigestion tarries; the new year's gifts are almost forgotten, but our tradesmen's bills are painfully obtrusive. Old friends and acquaintances have met and parted; "it may be for years, or it may be for ever." The work-a-day world has resumed its ordinary routine; but the boys and girls have not yet all gone back to school, and the "pantomime" fever is still raging. Never before was there more enthusiasm on the subject among the juveniles, and two or three of the performances are exceptionally good. Whilst the good people of Calcutta are languidly enjoying the refined comedy of the elegant Charles Matthews with punkahs flapping and the thermometer standing at 90°, we are merrily participating in the jokes and iniquities of clown and pantaloon, but blowing on our fingers to keep up the circulation. We are enduring a spell of severe cold with every prospect of its continuance. What says the Poet?

> "Breathes there a man with soul so dead,
> Who never to himself hath said,
> My own! my native land?"

But "my own, my native land," with three or four inches of snow on its surface and a bitter north-east wind blowing, is more poetical on paper than comfortable in reality, and a little "expatriation" in the right part of the globe would be far from unwelcome. In Madras you see too much of the god

Phœbus; in London he never shows his face at all. This reminds me of a profane remark, that in England the Persian religion must be a sinecure, since their Deity the sun is non-existent.

Mr. Plimsoll is still indefatigable in his efforts to remove unseaworthy ships from the highways of Neptune, and has been visiting all the ports of the Black Sea with a view to revising the arrangement of grain cargoes. There can be no doubt that "coffin-ships" are still plying in large numbers in all quarters of the globe, and Mr. Plimsoll deserves the thanks of humanity for his energetic efforts to put a stop to what may fairly be termed a reckless traffic in human lives. Still his enthusiasm is apt at times to carry him away; and he has subordinates who, with the best intentions in the world, allow their zeal to outrun their discretion, and thereby defeat their own object. A notable instance of this has just occurred. A certain Mr. Fyfe, who claims to be Mr. Plimsoll's acting agent at Liverpool, has been telegraphing to the Queen, requesting her to detain a ship, the *Wild Rose*, which had already been pronounced seaworthy by the Board of Trade authorities. Now Mr. Fyfe is, or ought to be, well aware that Her Majesty is a constitutional monarch, and cannot interfere with the administrative acts of her ministers; his telegram to the Queen can, I fear, only be regarded in the light of a piece of consummate impudence. The member for Derby must bear in mind that the great strength of his cause consists in public support, and that he cannot retain without discretion.

I am, yours, &c.,

PERIPATETIC.

HIGH COURT—MADRAS.

MORGAN, C. J., AND FORBES, J.

Suit for wages—Limitation.

Where A sued to recover his salary as a fencing master under Clause 7 of the Limitation Act—

HELD, *that Clause 7 applied to the wages of servants and labourers, but not to the pay of a teacher for instruction.*

Referred Case 20 *of* 1875.

Bylman Jankan Saib Vasthath *v.* Jenaka Raja Tever.

THE following case was stated for the opinion of the High Court under Section 22, Act XI of 1865, by Mr. C. W. W. Martin, Acting Small Cause Court Judge of Madura.

Plaintiff sues defendant under an alleged verbal contract, whereby defendant was to pay him 15 Rupees per mensem for instructions in the arts of wrestling and fencing. The time at which he has laid the contract is from March 1st, 1873, to July 31st, 1873, and the question on which I request the opinion of the High Court, is whether Section 7 of the Limitation Act is the section applicable to the case.

The word generally applied to persons of such a profession in England is the word artist; but I find from the dictionaries, that artist is almost synonymous with artisan, and that "Manual dexterity" is the leading characteristic of both artists and artisans. If the complainant be held to be an artisan, the character of his employment with the defendant was such as to make his present claim to be for "the wages of an artisan," and I have found it to be so.

I enclose an extract from his deposition, to show how he stood with relation to the defendant. I also enclose, at defendant's request, a translation of a written argument he has submitted against my finding.

ENCLOSURE No. 1.

Extract from the Judge's Book of Evidence of the Court of Small Causes of Madura, under date the 25th June 1875.

It is now two and a half years since the cause of action. The contract was on 1st March 1873. I was with Jenaka Raja on 1st March 1873. During the life of the Raja he often asked me to teach him, and after his death he agreed to pay me 15 Rupees per month. I used to go both morning and evening, and whenever he wanted I taught him. The contract was in his house in Ramnad. After I was appointed he was there one month, then for fifteen days he went away to Shivaganga, and never returned. Jenaka Raja had said that he would send me a money order for my pay, and he didn't send. I taught him up to the end of July. I only taught him three months in Madura, in Vencatasawmy Naick's and in Meenatchi Naick's. I was dependent on him. Whenever he liked he could rescind the contract. Cross examined. I wasn't to take his orders, except for wrestling.

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ENCLOSURE No. 2.

TO THE JUDGE OF THE COURT OF SMALL CAUSES *of Madura.*

Motion presented, under Section 22, Act XI of 1865, by M. Vythenada Ayer, vakeel on behalf of plaintiff in Suit No. 599 of 1875 on the file of the Small Cause Court.

On the 26th June 1875, the Court passed an order to the effect that this case will be referred to the High Court, as it was asserted by defendant's vakeel and denied by petitioner (plaintiff) that the case fell under Article 7 of Schedule II of the Limitation Act. The plaintiff's case stands as follows:—

I. This suit has been brought by plaintiff as a tutor, against the defendant as a pupil, for recovery of the money being the consideration due by the defendant under a contract which he (defendant) made with his tutor (plaintiff).

II. The plaintiff has not done any work under defendant as a servant under a master.

III. It is alleged on the other side that the word 'artisan' is to be construed as embracing men like plaintiff skilled in the art of fencing, but the Article 7 cannot apply to the present case, where the parties stand in the relation of tutor and pupil as described above.

As it cannot at all be construed that the Article 7 applies to a suit brought by a teacher against his scholar for recovery of money which the latter engaged to pay the former for the education received in English, Tamil, and other languages, as well as for instruction in the art of singing and dancing, and there being no difference between such a case and the present one, he (petitioner) begs to submit that the present suit is not barred by the Limitation Act, and falls under Article 118 and not 7 of the Schedule II of the Limitation Act.

The Court is therefore requested to take the above arguments also into its consideration.

The High Court delivered the following

Judgment:—16th August 1875.

The 7th clause provides for suits "for the wages of a domestic servant, artisan, or labourer not provided for by this schedule, No. 4," and No. 4 relates to suits for wages, hire, or price of work under Act IX of 1860 ("to provide for the speedy determination of certain disputes between workmen engaged in Railway and other public works, and their employers"). In the case stated, the suit is for arrears of a monthly payment agreed to be made for instructions in fencing and wrestling. Such a suit is not, in our opinion, governed by the 7th clause, which applies to the wages of servants and labourers skilled and unskilled, but not to the pay of a teacher for instruction.

HIGH COURT—BOMBAY.

[*Appellate Civil Jurisdiction.*]

WESTROPP, C. J., AND KEMBALL, J.

Shilotri lands—Inamdars—Regulation I of 1808, *Section* 4—*Right of Inamdars to raise the assessment on Shilotri lands—Prescriptive right of Inamdars to recover from Shilotridars the revenue formerly paid by the latter to Government.*

Government, by an indenture dated the 25*th January* 1819, *conveyed to A and B and their heirs and assigns certain villages in the Island of Salsette, with the exception of such spots of Shilotri tenure as might be therein, or on any part thereof, which could only become the property of A and B on their purchasing the same from the proprietors. Since* 1819, *the holders of these Shilotri lands had paid to the grantees and their heirs assessment (or rent) at a fixed rate which, before the grant, they used to pay to Government. In an action brought by an heir of A and B in* 1868 *to recover an enhanced rent or assessment levied on these lands:*

HELD *that the effect of an exception in the Indenture of* 1819 *being to throw upon the plaintiff the burden of proving his right to enhance the rent (or revenue), which he had failed to do, and Regulation I of* 1808, *Section* 4, *Clauses* 1 *and* 2, *containing admissions by Government (which then was the immediate landlord of the Shilotridars), that Government itself had no such right, plaintiff was consequently not entitled to raise the rent.*

HELD *also that though the language of the exception was so large that it might have been construed to exclude any right on the part of the grantees to receive rent (or revenue), yet that as the defendant or his predecessors had, ever since* 1819, *paid to the plaintiff and his predecessors the revenue paid before that time to Government, that revenue passed under the Indenture of* 1819 *to the grantees in the deed.*

S. A. 26 *of* 1873.

Dadibhai Jahangirji *v.* Ramji bin Bhau and others.

THIS was a special appeal from the decision of G. Ayerst, Assistant Judge at Tanna, affirm-

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ing the decree of the Subordinate Judge of the same place.

The special appeal was argued before Westropp, C. J., and Kemball, J., on the 2nd September 1874.

Macpherson (with him *Shantaram Narayan*) for the appellant.

Vishvanath Narayan Mandlik for the respondent.

WESTROPP, C. J.—In this case, the sole question is, whether the plaintiff, who is *Inamdar* of (amongst other villages) the village of Dahisur or Dyenseer, in the Island of Salsette, is entitled to raise the rent (or revenue assessment) payable to him in that capacity by the defendant, who is the occupant of certain lands in that village. There was also in the Courts below a question whether the lands, the subject of the present claim, are *Shilotri* lands, which question has, in both of those Courts, been determined in the affirmative; and it has been admitted by the learned counsel for the appellant (plaintiff) that he cannot, on special appeal, dispute that finding. Silotri *alias* Shilotri *alias* Shelowtr *alias* Serrotore lands are mentioned in Section 4 of Regulation I of 1808 as follows:—

"*First.*—There has existed from that time (the period of the acquisition by the British of the Island of Salsette (Sashti) in A.D. 1744 by conquest) a description of landed property, under the denomination of Shelowtr (called also Serrotore), and consisting of lands said to have been acquired by the natives on favourable terms of tenure, by purchase from their Portuguese masters, which property has been respected throughout the subsequent revolutions.

"*Second.*—Another description of Shelowtr tenure consists of certain spots of ground gained from the sea by embankment, or brought into cultivation from the jungle or forest, at the personal expense of individuals, who have thence continued to pay thereon, in several instances, a fixed quit-rent without reference to the produce."

Section 36 of the same Regulation in its 9th, 10th, 11th, 12th, 13th, and 15th clauses, and Section 59, take a distinction between Serrotore holdings of white batty ground (chowka) and Serrotore holdings of black batty ground, otherwise styled khara or salt batty ground, which is probably the same distinction as that taken in Section 4, already quoted. The 48th section of the same Regulation shows that Government, in making a grant of lands in the village of Powey and other villages in the same Island in A.D. 1799 to Mr. Helenus Scott, expressly excepted such parts thereof as were of Serrotore tenure, and, in that exception, took no distinction between white and black batty ground.

The present plaintiff claims to be *Inamdar* as son of Jehangir Ardasir. Cursetji Ardasir and Jehangir Ardasir were the sons of Ardasir Dady, with whom Government had agreed to exchange the village of Dahisur and other villages in Salsette for certain lands in the Island of Bombay.

Ardasir Dady having died before that agreement was carried into effect, Government, by an Indenture of exchange, dated the 25th January 1819, executed in pursuance of that agreement, conveyed the village of Dahisur (which was there described as containing 27 parahs and 18½ adolies of black batty ground, and 197 morahs, 1 parah, and 6½ adolies of white batty ground) and the said other villages in Salsette to Cursetji Ardasir and Jehangir Ardasir and their heirs and assigns, "with the exception of such spots of Serrotore tenure as may be therein, or on any part thereof, which can only be the property of the said Cursetji Ardasir and Jehangir Ardasir on their purchasing the same from the present proprietors thereof."

The Assistant Judge has not only found that the lands, the rent of which is sought to be enhanced by this suit, are *Shilotri* lands, but that they were so previously to the date of the Indenture of the 25th January 1819, which finding is admitted by counsel to be conclusive on this Court. The defendant, in his written statement, admits that, for upwards of thirty years before the bringing of this suit, he has paid assessment on his *Shilotri* land to the plaintiff at a fixed rate.

It is in fact now admitted on both sides, that the rate at which assessment on the defendant's lands was paid to Government before the grant (in exchange) of Dahisur, &c., to the defendant's ancestors in 1819, was 5 Rupees, 2 annas, 2 pies, and that the same rate has been since paid to those grantees, without variation, down to 1863-64, when the attempt was made by the plaintiff to raise the rent in conformity with the new valuation then made by the survey officers of Government, and that there is not any evidence of any different rate having been at any time whatever paid by the *Shilotridars* (including the defendant) to Government.

Both of the Courts below have found that, under the above circumstances, the plaintiff is not entitled to raise the rent, and the question for our decision is whether or not that ruling is right in law.

The language of the exception in the Indenture of 1819 is very large, and might perhaps, in the absence of proof of payment of rent by the defendant and his predecessors, have been construed to exclude any right on the

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part of the grantees even to receive rent (or revenue) in respect of *Shilotri* lands. The exception does not make any distinction between the *Shilotri* lands described in the first clause of Section 4 of Regulation I of 1808, and those described in the second clause of the same section, nor between white and black *Shilotri* batty ground, and in both of those respects the exception in the Indenture of 1819 tallies with the description given in Section 48, of the exception in the grant of 1799 of the village of Powey to Mr. Helenus Scott. The Regulation of 1808, however, shows that *Shilotri* lands (both of white and black batty) paid revenue to Government, and it appearing that, ever since 1819, the defendant or his predecessors in the *Shilotri* holding have not paid revenue to Government, but have, without question, paid regularly to the plaintiff and his ancestors the rent or revenue of Rupees 5-2-2, which had previously been paid to Government, we think we are bound to hold that the right to that revenue passed under the Indenture of 1819 to the grantees in that deed. But we are clearly of opinion that the effect of the exception was to preserve to the *Shilotridar* his rights over the land as they then stood, and that the burden is thereby cast upon the plaintiff to prove his right to enhance the revenue, and that he not only has failed to prove any such right on his part, but that the first and second clauses of Section 4 of Regulation I of 1808 contain admissions by Government (which then was the immediate landlord of the *Shilotridars*) tending to show that Government had not any such right. Under these circumstances, we must affirm the decree of the Assistant Judge with costs.

Decree affirmed with costs.

—*Bombay High Court Reports*, Vol. XI., p. 162.

[*Appellate Criminal Jurisdiction.*]

WEST AND NANABHAI HARIDAS, JJ.

The Indian Evidence Act I of 1872, *Sections* 5, 11, 153, 155, *and* 165—*Cross-examination of a witness after his examination by the Court —Trial by Jury—Evidence properly admitted withheld from the Jury—New trial.*

The principle that parties cannot, without the leave of the Court, cross-examine a witness whom the parties having already examined or declined to examine the Court itself has examined, applies equally whether it is intended to direct the cross-examination to the witness's statements of fact, or to circumstances touching his credibility, for any question meant to impair his credit, tends (or is designed) to get rid of the effect of each and every answer, just as much as one that may bring out an inconsistency or contradiction, Section 155 *of Act I of* 1872.

The statement of a witness for the defence, that a witness for the prosecution was at a particular place at a particular time, and consequently could not then have been at another place, where the latter states he was and saw the accused persons, is properly admissible in evidence, even though the witness for the prosecution may not himself have been cross-examined on the point, Sections 5, 11, *and* 153 *(Illustration C) of Act I of* 1872.

Where such a statement, after being admitted, was withheld from the Jury, the High Court ordered a new trial.

Reg. *v.* Sakharam Mukundji and three others.

The four accused persons were tried and convicted of the offences of mischief by fire and being members of an unlawful assembly, by N. Daniell, Acting Session Judge of Poona, and a Jury, and sentenced, for the former offence, to five years, and for the latter to six months' rigorous imprisonment.

The material facts are as follows :—

The accused were charged with having set fire to a Maharwada of the village of Wahle. After examining several witnesses, the prosecution examined a witness named Kalu Satu. The defendant's Vakeel having declined to cross-examine him, the Session Judge asked him several questions, which elicited matter unfavourable to the accused persons. Their Vakeel thereupon requested the Judge to allow him to cross-examine him, with a view to test his veracity; but the Judge refused to allow him to be questioned, except on the matter already recorded in answer to the Court. The Vakeel did not avail himself of this permission.

After the close of the case for the prosecution the evidence for the defence was gone into. This included the evidence of witnesses Dhondu and Janaku, who, among other things, stated that two of the witnesses for the prosecution, named Savlia and Somia, were at Dhond Village, and not at the village where the fire took place at the time when they stated they saw the accused persons there. In the charge to the Jury, the Session Judge, with regard to the evidence of Dhondu and Janaku, observed :—" This as evidence to impeach the credit of the witnesses Savlia and Somia is inadmis-

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sible; and as the alleged fact that they were in Dhond on that afternoon is not incompatible with their having visited Wahle, a neighbouring village, on the same afternoon, and as the witnesses Savlia and Somia have not been asked whether they were not at Dhond on that afternoon, this part of the evidence for the defence cannot be taken as contradictory of the alleged fact that the prisoners, or certain of the prisoners, were seen approaching, and at Savlia's house."

The appeal was heard by West and Nanabhai Haridas, JJ.

Leith (with him *Shantaram Narayan*) for the appellants:—

The Session Judge was wrong in not allowing Kalu Satu to be cross-examined, and in withholding from the Jury the statements of Dhondu and Janaku.

Dhirajlal Mathuradas, Government Pleader, for the Crown.

The judgment of the Court was delivered by

West, J.—The objection on the ground of the Session Judge having declined to allow one of the witnesses to be cross-examined cannot be sustained. When the counsel for the prisoner has examined or declined to cross-examine a witness, and the Court afterwards, of its own motion, examined him, the witness cannot then, without the permission of the Court, be subjected to cross-examination. When, after the examination of a witness by the complainant and the defendant, the Court takes him in hand, he is put under special pressure as the Judge is empowered to ask any question he pleases, in any form about any fact relevant or irrelevant (Section 165, Indian Evidence Act); and he is, therefore, at the same time placed under the special protection of the Court, which may, at its discretion, allow a party to cross-examine him, but this cannot be asked for as a matter of right.

The principle applies equally whether it is intended to direct the examination to the witness's statements of fact, or to circumstances touching his credibility, for any question meant to impair his credit tends (or is so designed) to get rid of the effect of all his answers, and of each of them just as much as one that may bring out an inconsistency or contradiction. It is then a cross-examination upon answers—upon every answer given to the Court, and is subject to the Court's control.

The next point is that the Judge misdirected the Jury in telling them that the evidence of Dhondu and Janaku, who were called by the defence to contradict the statements of Savlia and Somia, that they saw the accused at Wahle when the Maharwada was burnt, is inadmissible. The Session Judge said that the evidence of Dhondu and Janaku that Somia and Savlia were at Dhond (the latter witnesses having said that they were at Wahle) was not admissible to impeach their credit, and that as Savlia and Somia were not cross-examined by the defence, as to whether they were or were not at Dhond in the afternoon of the day the fire took place, and it was possible for them to have been during the same afternoon at both places, the statements of Dhondu and Janaku could not be considered to contradict the statements of these witnesses.

The rule of English law on this point is that the credit of a witness may, amongst other ways, be impeached by evidence of facts, contradictory of the evidence given by him. The express provision of the Indian law is less extensive. The witness's credit, it is provided, can only be impeached in certain specified ways (Section 155), that is, by questions or by testimony going directly to his credit, not mediately through a contradiction of the particular matter deposed to by him in the case.

In the present instance the Session Judge seems to have been mistaken in supposing that Dhondu and Janaku were called to impeach the credit of Savlia and Somia in the sense of the section of the Indian Evidence Act first referred to. They were called to contradict Savlia and Somia's statements. Their evidence, though not as to the fact in issue, was as to facts which in connection with other facts made the existence of a relevant fact, one immediately connected with a fact in issue, highly improbable; and under Sections 5 and 11 of this Act such testimony was relevant and admissible. If it is true, as Dhondu and Janaku allege, that Savlia and Somia were at Dhond till the afternoon of the day of the fire, it is highly improbable that Savlia and Somia could have left Dhond at about 11 A.M., or noon, and therefore highly improbable that the accused should have been seen by them at Wahle, as they assert, at about 1 P.M. The case is like that in Illustration (*C*) to Section 153 of the Indian Evidence Act, which shows that the admissibility of the testimony does not depend on the cross-examination of the witnesses to be contradicted.

The evidence having thus been properly admitted, it ought not to have been withdrawn from the consideration of the Jury, as it virtually was, by the Session Judge's charge. Its tendency was clearly to show that the alleged fact deposed to by Savlia and Somia of the accused having been seen by them at a particular time and place, was not one that had really occurred, and it ought to have been allowed to have its natural weight with the Jury. We must, therefore, order a new trial.

Proceedings annulled, and a new trial ordered.
—*Idem*, p. 166.

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HER MAJESTY'S PRIVY COUNCIL.

[Madras Case.]

Brahmin agraharum—Shrotrium.

Where A, a Zemindar, sued to recover a village held by certain Brahmins as shrotrium, and it appeared that before the permanent settlement one of his ancestors had granted the village to these Brahmins in perpetuity—

Held, *that A could not recover the village from the Brahmins, nor could he assert that the grants made by a former Zemindar were void unless confirmed by his successors.*

Judgment of the Lords of the Judicial Committee of the Privy Council on the appeal of *Stri Raja Vyricherla Raz Bahadoor* v. *Nadiminti Bagavat Sastri*, from the High Court of Judicature at Madras, delivered 19th November 1875.

Present.

Sir James W. Colvile.
Sir Barnes Peacock.
Sir Montague E. Smith.
Sir Robert P. Collier.

The question to be determined on this appeal is whether the appellant, the Zemindar of Kurupan, is entitled to turn the respondents, who are certain Brahmins claiming to have an agraharum tenure in the village of Turakanayuduvalasa, out of possession of that village, and to recover the mesne profits from the time specified in the plaint. The case of the plaintiff is thus stated in the 9th paragraph of the plaint. He there says, "In the year 1857 I "attained my majority, and took charge of the "zemindary. The said village was until then "enjoyed as a jeroyti portion of my zemindary "for many years, and was severed therefrom "only in the year 1857. It is therefore pray-"ed that the Court may adjudge to me the "jeroyti village of Turakanayuduvalasa (situat-"ed within the boundaries hereunder specified, "and yielding at present an annual income of "Rupees 1,000), together with the produce "made over to the defendant by the Court, as "also the produce subsequently enjoyed by "him, with interest thereon, amounting to "Rupees 39,577-13-4, as per schedule." The plaint therefore treats the restoration of possession to the defendants under a former decree, of which the execution was in 1855 directed by the Sudr Court to be made, as a species of trespass. It seeks to reopen the settlement of account made by or in conformity with that decree; and to recover back the sum then paid, with subsequent mesne profits. The suit is brought, not upon any notice to determine an alleged tenancy at will, but as upon an act of trespass, giving a right of action from a particular time. It is difficult to reconcile such a claim with the admitted facts of the case, or to see how, upon any view of the evidence in the cause, the plaintiff could obtain the particular relief which he has prayed.

It is not their lordships' intention to follow Mr. Mayne through that wilderness of litigation in which they have been very clearly guided by him, the history of which does not present by any means a favourable picture of the administration of justice in the Presidency of Madras (or, at all events, in the district of Vizagapatam) during the greater part of the present century. It may be necessary hereafter to refer to some of those proceedings which have a peculiar bearing upon the points raised by the present appeal. It is sufficient, however, for the present, to observe that in 1861, when the former decree above referred to was finally executed, there was, as it were, a new point of departure.

The Brahmins were then reinstated, under the authority of the Court, in possession of their village; and recovered a certain portion of the mesne profits received by the Zemindar after the estate had been made over to him upon the taking off of the zuft or attachment. The Zemindar, on the other hand, was left to assert what rights he had to impeach this agraharum tenure in a new and independent suit; and this suit, which was commenced in 1864, has been treated in the Courts below, and may here be treated, as one brought for that purpose. Nor, again, is it necessary to consider in detail the earlier stages of this new litigation, or in particular the proceedings in which his right, whatever it might be, was held to be barred by the decree obtained in 1807, because the High Court having rejected that view of the case, and also departed from the view which it had itself originally entertained, to the effect that the suit was barred by the Statute of Limitations, finally, by the order of the 26th March 1866, sent the parties back to trial on these two issues, viz., 1st, "Whether the defendant "at the date of the suit held the village in "question under the grant made to his an-"cestor before the date of the permanent "settlement;" and 2nd, "Whether the defend-"ant's holding under such grant was kattubadi "or other tenure, subject to a fixed quit-rent "which the plaintiff could not legally deter-"mine."

Now, as the case comes before their lordships, those two issues have been found by the two Indian courts which last dealt with them in favour of the plaintiff. Therefore, so far as they are findings upon matters of fact,

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they are findings which this tribunal, in accordance with its ordinary rule, will not be disposed to question. As to the first issue, Mr. Mayne, in the course of his able argument, was almost constrained to admit that he could not impeach the correctness of it. The evidence upon which the Court came to its conclusion on the first issue depended in part upon two documents, of which the genuineness had been contested, but which both Courts have found to be genuine,—I mean the dombala of Mr. Webb on the 20th May 1800, which clearly treated the village as then held as an agraharum by the Brahmins, and directed that it should be relinquished to him on his paying the customary yearly shrotrium to the Zemindar of Kurupan of Rupees 150. That was followed by a putta, also found to be genuine, whereby the then Zemindar, or his guardian in his name, stated that, "As my ancestors have granted "to you the agraharum of Turakanayuduvalasa, "attached to our jaghire of Kurupan Taluk, "I again grant it to you as ekabhogam (entirely) "in the name of Shri Swami, fixing a shrotrium "(revenue) of Rupees 150. Therefore you and "your descendants may extensively improve "and enjoy it, paying the shrotrium (revenue) "every year, and bestowing blessings upon us. "He who maintains what another gives, gains "a virtue double that he gets by giving it "himself."

It seems to their lordships that the Court, finding those documents to be genuine, have rightly come to the conclusion that they establish the affirmative of the issue in favour of the plaintiff; that whatever may have been the original grant, of which the first seems to have been a grant absolutely rent free to the Brahmins, it must be taken that in some way or another the rights of the Brahmins had become modified to that extent; that they were to hold this village only subject to the payment of the shrotrium or fixed rent of Rupees 150; and that that was the state of things in 1800, and before the completion of the perpetual settlement of the zemindary.

That being so, the only question that would remain would be, whether the Court, finding that, was correct in coming from that conclusion and upon the other evidence in the cause, to its finding on the second issue, "that the "defendant's holding under that grant was "kattubadi, or other tenure subject to a fixed "quit-rent, which the plaintiff could not legally "determine."

The principal ground upon which the correctness of that finding has been attacked is that it is conclusively shown by the lists of the zemindary property, upon which the perpetual settlement was made, that the village was entered in those lists, and must therefore have been treated in the settlement made upon them as a jeroyti village, and not as a shrotrium or agraharum village. That raises the question, what is the effect of a mistake in this description of the village upon the second issue raised in this cause? That there was, in the proper sense of the term, a mistake, is reasonable to conclude from the dombala of Mr. Webb, because Mr. Webb appears to have been the collector who was taking a large if not the sole part in making the permanent settlement; and if he in 1800 was satisfied that this was a shrotrium village and directed that as a shrotrium village it should be delivered over to the Brahmins, he would hardly proceed consciously or intentionally to enter it as a jeroyti village in the settlement. But however that may be, the question is, what is the effect of the entry upon the interest of the holders of an agraharum tenure? Their lordships cannot find any authority for saying that it is conclusive against the rights of the tenants. They were not necessarily parties to the proceedings which resulted in the settlement between the Zemindar and the Government. It may be conceived that the Brahmins, as they said they were in fact, though the evidence does not support their allegation, might have been absent whilst the proceedings were pending. There seems to be nothing in the regulations, as their lordships read them, which would so conclude them. No doubt, if the village had been entered as a shrotrium village in the settlement papers, that would have been conclusive as to the rights of the Brahmins against the Zemindar, against the Government, against any purchaser at a sale for arrears of revenue, and, in fact, against all the world. But the Settlement Regulation XXV of 1802 does not contain anything which says that if the parties by carelessness or by accident allow their village to be misdescribed they are to forfeit their rights. It does not even say that all the shrotrium grants which then existed, and which were to be protected against future enhancement, were to be registered; and, on the other hand, that regulation is followed by a subsequent regulation of 1822, which declares that the provisions of the former regulation were not meant to define, limit, infringe, or destroy the actual rights of any description of landlords or tenants, but merely to point out in what way the tenants might be proceeded against in the event of their not paying the rents justly due from them, leaving them to recover their rights infringed, with full costs and damages, in the Courts of Justice. It cannot be said that as a matter of law and of right the parties have forfeited the interest which they would otherwise have in this tenure by reason of the misdescription of the village in the settlement papers.

It has, however, been agreed by Mr. Mayne that the insertion of the village as a jeroyti village at least affords the strongest presumption that the parties then knew that they had

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not a good agraharum, and of their acquiescence in that description as correct; but that presumption seems to their lordships to be rebutted by all that subsequently took place. They were first dispossessed some short time after the settlement in 1807. They immediately asserted their rights, and the decision of the Court, so far as it went, was in their favour. The effect of it was that the Zemindar had taken possession of the village forcibly, or, at all events, not under a judicial decision; and that, according to the law as laid down in the regulations, the only way in which he could interfere with the right claimed by the Brahmins was by a regular suit. Accordingly the Brahmins were again put into possession. The Zemindars for the time being seem to have acquiesced for nearly 20 years in that decision; and but for the decisions in India, by which it has been ruled that questions between landlord and tenant, and particularly questions of enhancement of rent, are not within the operation of the Statute of Limitations, there would have been no answer whatever to the proposition that the right of re-entry of the Zemindar, if it had ever existed, had been barred by lapse of time.

Their lordships are therefore of opinion that both the issues have properly been found in favour of the defendant.

There remains to be noticed the further question, which was raised by Mr. Mayne, viz., that these grants were, at most, grants by the Zemindar which could take effect only during the life of the particular Zemindar, and, unless affirmed by his successor, were voidable. Whether, assuming that proposition to be correct, the particular suit as it is framed could have been supported, may well be doubted. But their lordships have already intimated their opinion that this point, which was not taken in the present suit in the Courts below, is not open to Mr. Mayne upon the present appeal. They will not therefore say more upon it, than that it would have required strong authority to convince them that grants made by a Zemindar before the estate was permanently settled, and became subject to the rules which may have been laid down in the Madras Regulations as to subsequent alienations of this kind, were not binding upon the successors of the grantor.

Their lordships will humbly advise Her Majesty to affirm the decree of the High Court, which is the subject of the present appeal, and to dismiss the appeal with costs.

[BENGAL CASE.]

Suit to recover land—Former decree—Identity.

A sued for possession of certain land which Government had resumed as lakeraj, *and had subsequently settled with B. It appeared that in a former suit B had established his claim to the land, but A now contended that the claim established by B was to some other land, not the particular portion he now sued for.*

HELD, *that the identity of the land sued for, and that to which B had previously established a claim, was fully proved.*

Judgment of the Lords of the Judicial Committee of the Privy Council on the appeal of *Ranee Khujooroonissa* v. *The Collector of Purneah* and others, from the High Court of Judicature at Fort William in Bengal, delivered 23rd November 1875.

Present.

SIR JAMES W. COLVILE.
SIR BARNES PEACOCK.
SIR MONTAGUE E. SMITH.
SIR ROBERT P. COLLIER.

THIS suit was brought by Enayet Hossein, whom the Ranee, the present appellant, represents, and also by Syed Ahmed Reza, who is not represented at the present hearing, against the Collector of Purneah and Emritnauth Jha, and others, to recover possession of 3,700 beegahs of land in Pergunnah Soorjapore. The Government was made a defendant because it had resumed the land as being lakheraj land in the possession of the other defendant Emritnauth Jha, and settled it with him. The suit, besides praying to have the right of the plaintiff to the land declared, and possession, sought to rescind the decision come to on the resumption proceedings. It appears that the plaintiffs are the proprietors of a zemindary in Pergunnah Soorjapore, and Emritnauth Jha and his ancestors claimed to hold within that Pergunnah, as lakheraj land, 3,965 beegahs. The Government thought they were entitled to resume the land, and inquiry was instituted at their instance. On the first inquiry it appeared that 265 beegahs were held as lakheraj by Emritnauth Jha or by the ancestors of Emritnauth Jha. The Government thought that was too small an amount to resume, but in the course of the inquiry, the Collector found reason to suppose that there was a much larger quantity of lakheraj land within the pergunnah, and a new investigation was directed. Upon that investigation it was found that there was the large quantity, including the 265 beegahs,

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of 3,965 beegahs. In the proceedings which took place to resume the land on the part of the Government, the plaintiffs intervened, claiming the land as part of their settled zemindary, and evidence was gone into on the part of the Government and of the ancestors of the present appellant and the respondent in support of their respective claims. The result of the proceedings was that the Government resumed the land—the whole 3,965 beegahs—and settled it with the respondent. The present suit was then brought, as has been already stated, to question the settlement, and for possession.

It appeared in the evidence given in the present suit, that there had been a former suit between the ancestors of the appellant and the ancestors of the respondent respecting this land, and a judgment of the 21st December 1808 was given in evidence. In that suit the parties were reversed. The ancestor of the present defendant was the plaintiff, and the ancestors of the present plaintiffs were the defendants, and the plaintiff in that suit complained that the defendants had taken possession of 500 beegahs of his bromuttur land. The answer of the defendants did not deny that the then plaintiff was entitled to bromuttur; on the contrary, their answer admitted that he was entitled to 3,965 beegahs of ancestral bromuttur land in the taluk, but their defence was that the 500 beegahs which he then sought to recover was not part of those 3,965 beegahs. They failed in this contention, and it was found that the defendants were in possession of the 500 beegahs which the plaintiff claimed. The finding was this:—" Upon trial it has been " ascertained from the papers filed by the Ameen " that 3,965 beegahs 16 bisvas of the plaintiff's " ancestral bromuttur land, situated in Mouzah " Budeanud, &c. in the said taluk, has con- " tinuously been possessed from time immemo- " rial by plaintiff's ancestors and plaintiff under " two sunnuds and chuckbund dated as above." These sunnuds are described to be one of the time of the Nawab for 265 beegahs, and the other of the time of Nawab Saif Khan for 3,700 begahs. " Now the defendants have dis- " possessed plaintiff of 500 beegahs in Mouzah " Budeanud of land included in the boundaries " stated in the chuckbund. Under these cir- " cumstances the plaintiff's suit appears true " and just." There is thus a finding that the now defendant, the plaintiff there, was entitled to these 3,965 beegahs, and entitled to them under the two sunnuds. The Principal Sudr Ameen in the present suit did not find against the genuineness of that decision, but gave several reasons for not giving effect to it, which it is not necessary now to discuss. On the case coming on appeal before the High Court, a question was raised whether such a decision had really been passed, and the High Court appear to have taken great pains to ascertain the authenticity of the judgment. They sent to the judge of Purneah to ascertain the state of the records in his office, and got a report from him. It seems also that the original book of records was sent up to them, containing the notes or copies of the decrees which were passed, and having inspected it, the judges of the High Court came to the conclusion that this decree was a genuine decree, which had been passed by the judge in the litigation between the parties in 1808.

That being so, the question arises, what is the effect of it upon this litigation? Their lordships entirely agree with the High Court that the effect of it is to establish that upon the trial of the issues which then took place it was found, either upon the evidence or upon the admissions of the present plaintiffs, that 3,965 beegahs of bromuttur or lakheraj land did belong to the ancestor of the present defendant, that land being situate in Pergunnah Soorjapore. It could not then be contended that if that decree applies to the land in dispute, full effect should not be given to it in this suit. The only answer that has been suggested to their lordships by the learned Counsel for the appellants is that the lands which were the subject of the decree of 1808 are not shown to be the same lands as those for which the plaintiffs are now suing. He says that there is evidence that the plaintiffs had been in possession of the lands for which they are now suing, and therefore it lies upon the defendants to show the identity of the lands which are the subject of this suit with those which were in question in 1808. Without saying where the burden lies, their lordships are perfectly satisfied upon the evidence that the lands which were referred to as the 3,965 beegahs in the suit of 1808 included those which are the subject of the present suit. It appears that the ancestor of Emritnauth Jha claimed the land in that suit under two sunnuds, the larger portion of the land, 3,700 beegahs (being the quantity sought to be recovered in this suit), under a sunnud of the Nawab Saif Khan. It appears that in the resumption proceedings, his ancestor's claim to those 3,700 beegahs was based upon the same sunnud, and was contested by the plaintiffs upon the ground that the sunnud was not genuine. Some proceedings in the resumption suit were referred to by Mr. Cowie, from which it clearly appears that Emritnauth Jha was in possession at the time when the Government commenced the resumption proceedings. Now the land of which he was then in possession, and which the present plaintiffs are now seeking to recover, is identified with the land which his ancestor claimed in the suit of 1808 by the sunnud of Nawab Saif Khan, which, both in the decision of 1808 and in the resumption proceedings, is made the foundation of his claim. The resumption proceedings refer to the decision of 1808, and

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show that what the Government is dealing with are the lands which were included in that suit. Therefore the identity of the lands now sued for with the lands which were the subject of the decision of 1808 is satisfactorily established.

Upon a slight investigation of the evidence as to possession, it appears to be conflicting. The kabooleats and the jumma wasil-bakee papers produced by the appellants,—the papers relied on to show his possession,—although credit was given to them by the Principal Sudr Ameen, were discredited by the High Court. Without those papers the plaintiffs have very slight evidence of having ever been in possession.

Their lordships being of opinion that the identity is clearly made out for the reasons they have stated, will advise Her Majesty to dismiss this appeal, and to affirm the decree of the High Court with costs.

OFFICIAL PAPERS.

Caoutchouc Plantations in Assam and Bengal.

Proceedings of the Madras Government, Revenue Department, 30th September 1875.

Read the following letter from A. O. HUME, Esq., C. B., Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, (Forests), to the Secretary to the Government of Madras, Ootacamund, dated Simla, 31st August 1875, No. 22/967 :—

I am directed to forward, for information and communication to such of the Forest Officers in the Madras Presidency as take an interest in the subject, the accompanying copies of a Report by Mr. G. Mann, Officiating Deputy Conservator of Forests in Assam, on the Caoutchouc plantations in that province, and the yield of Caoutchouc from *Ficus elastica*, together with a Report by Dr. Schlich, Conservator of Forests in Bengal, on the success which has attended the raising of seedlings of *Ficus elastica* in nursery beds in the Darjeeling Division.

Enclosure No. 1.

Report on the Caoutchouc Plantations in Assam, and the yield of Caoutchouc from Ficus elastica.

The last report submitted on this subject contained the results of the first attempt to plant *Ficus elastica* in Assam up to the end of March 1874, and this report will, therefore, record the results of the planting since that date.

2. The different opinions expressed during the year on the growth and yield of *Ficus elastica* have proved to me that facts regarding the nature of this tree, which I had considered clear and established, because I have had such constant opportunities of watching over and increasing my knowledge of the tree, still remain doubtful to others who have not had the same advantage, which induces me to report in greater detail now than I might have otherwise considered necessary.

3. (Plantation of 1873-74.) The planting during 1873-74 was reported in the last report as a failure on account of the lateness of the season when started and drought of that year, whilst the nursery work, or the propagation of the plants in Spring 1874, was reported as a success up to that date.

4. This report on *Ficus elastica* may conveniently be arranged under three heads as follows :—

(1.) The propagation.
(2.) The growth in plantations.
(3.) The yield.

5. The necessity for forming plantations of this tree having been recognised, no further remarks are required, except, perhaps, the statement that the protection of the Caoutchouc trees in the forests of Assam has again, during the year, been under the consideration of the Chief Commissioner, and the difficulties of protecting this valuable property prove to be almost insurmountable, scattered as these trees are through the forests; situated in the most inaccessible and unhealthy parts of the province, they have been the prey of tribes living near these localities, and may now be said to be almost a thing of the past.

6. Plantations will, of course, not be exposed to these risks, and can be easily managed by a comparatively small staff of Government officers.

I.—The Propagation of Ficus elastica.

7. Figs are, perhaps, of all the forest trees in India, the easiest to propagate; but for all this, the past year's experience has taught us that *Ficus elastica*, both as seedling and cutting, is very susceptible of injury from too much shade or drip from trees, causing excessive wet about its roots, which experience cost us a number of young plants, but thus established a fact which is of the utmost importance in the propagation of this tree.

8. (Propagation by Seed.) The seed sown on the Charduar Caoutchouc plantation on the nursery beds prepared with broken bricks, broken charcoal, and with earth only, as described in paragraph 19 of last year's report, germinated profusely on the 25th April

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1874, having at first the appearance of cress, the cotyledons being very small.

9. The artificial shading over these seed-beds, however, caused drip and excessive moisture, which proved fatal to many of the seedlings before the cause of the mischief was recognised.

10. The number saved amounted, however, to about 1,200, which were, on an average, of the under-mentioned sizes as they grew :—

On the 27th June 1874, $\frac{9}{10}$ths of an inch.
„ 12th Aug. „ 1$\frac{3}{10}$th inch.
„ 10th Sept. „ 5$\frac{7}{10}$th inches.
„ 21st April 1875, 2 feet 10 inches.

It should here be mentioned that the last of these was a seedling which had been left undisturbed in the seed-bed, and was exceptionally vigorous in growth.

Germination of Seed.

11. The seed sown germinated most freely on the broken bricks, next best on the charcoal, and least on the earth ; and as the seedlings grew, those on the broken charcoal succeeded eventually best of all, whilst those on earth perished, which, however, is due partly to the large trees left standing in the nursery and the artificial shade got up, for which there proved to be no necessity.

12. No perceptible difference was noted in the germination of the seed where the whole fruit had been sown and the fruit had been crushed, except that, in the former case, the young seedlings were very much crowded.

13. They are remarkably hardy as long as they are not exposed to too much shade and drip from above, causing excessive moisture about the roots.

14. During the last cold season most of them have formed a thick tuberous root resembling those of *Epiphytical rhododendron* and *vaccinium*, by which they, no doubt, are enabled to stand drought during the dry season much better than cuttings.

Seed Nursery of 1874-75.

15. During February and March this year a large nursery, measuring 36,000 square feet, has been prepared in the Chardnar plantation by raising beds four feet in width and one foot high, and covering them with 160 maunds of broken charcoal.

16. All trees had been cut down in this nursery, and no artificial shade of any description has been given to the seed-beds this Spring.

17. On these beds six maunds of seed were sown, the first of which germinated on the 18th April, and they look remarkably well.

18. A small quantity was also sown on earth alone to give this mode of raising seedlings a further trial, since it is more economical than where charcoal is used.

19. About 400 seedlings were brought in by "Miris," which had evidently germinated on the ground, and these men affirm that the seed of *Ficus elastica* germinates freely on the ground wherever there is sufficient light.

Seedlings brought in by Miri villagers.

Since these seedlings were fetched from the Akha Hills, immediately north of the Chardnar plantations, it is easily understood that the seed will germinate on steep hill-sides where there is light; whilst, for the same reason, in the dense evergreen forests along the foot of the hills this is a very rare occurrence.

That the seed of *Ficus elastica* will germinate and grow on the ground is further borne out by the young trees met with in Tea gardens, where the ground is kept clear.

20. At the Kulsi plantation in the Kamrup District seedlings have been raised in the same way on a small scale with much the same results.

Propagation by Cuttings.

21. The cuttings made in Spring 1874, and reported on in paragraph 18 of last year's Caoutchouc Plantation Report, suffered in a similar way from drip from the artificial shade and trees left as a precaution in the nursery, which has taught us the same lesson with regard to cuttings as with the seedlings.

22. This experience, after all, was very cheaply bought, since the cost of the nursery was trifling, and we managed to save 2,000 cuttings, which were sufficient for the plantation.

Time for making Cuttings.

23. The best time for making cuttings in Assam is, no doubt, from the middle of January to the end of May, it depending on the rain-fall during the latter three months which of the cuttings will do best; those made in 1874, after May, failed almost entirely.

24. The earlier in the season, before the young shoots to be used have started growth, the better chance they have of success, and at this time young terminal shoots will grow well; whilst after the trees, from which the cuttings are taken, have commenced growth, which happens about the end of January, the lower somewhat harder portion of the young branches succeeds better than the soft terminal shoots.

Description of Cuttings.

25. Only young and vigorous branches from lopped trees are used, and they are cut 1′ to 2′ in length, and are put three inches in the ground ; all scrubby branches from old trees almost invariably fail.

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26. The branches from young trees are still better than those of lopped trees, but these are rarely to be had now.

After our young trees are two or three years old, they will furnish any quantity of shoots best suited for cutting.

Nursery for Cuttings of 1874-75.

27. The making of the cuttings this Spring was begun in the end of January both at the Charduar and Kulsi plantations, and in the former it was continued until the 19th of March.

28. The beds for the cuttings were raised one foot high, all the paths between the beds being so constructed as to prevent water resting, and, as an extra precaution, the earth at the Charduar plantation was mixed with river-sand, since it is rather clayey, retaining moisture longer than suits the cuttings.

29. The nursery for cuttings in the Charduar plantation in the Darrang District prepared in this way measures 25,200 square feet, and at the Kulsi plantation in the Kamrup District a small nursery, sufficient to grow the cuttings for an extension of 30 acres, was prepared and planted.

30. The same artificial shading of grass was employed as last year, but was removed every afternoon and not replaced until about 9 o'clock in the morning, by which more light was ensured to the cuttings during part of the day, and they had the benefit of the night dew.

31. On the 7th of March the first rain fell at the Charduar plantation, and continued for some time, which opportunity was taken advantage of to harden off the cuttings and to remove the artificial shading entirely: until rain fell all were watered twice a-day.

32. The success of the harder cuttings has been general, whilst amongst the soft young shoots there have been many losses.

Number of Cuttings.

33. On the whole, the propagation from cuttings has this Spring been most successful, there being at the Charduar plantation 16,401 cuttings alive out of 21,213.

34. This is 22 per cent of failures, which is insignificant, considering that many of the cuttings were necessarily still inferior; young trees, which are the best for cuttings, beings extremely scarce.

35. At the Kulsi plantation there are 1,790 cuttings alive and doing well, which is also much more than we require for this year's extension.

36. A small nursery has also been prepared with equal success at the Bamuni Hill plantation in the neighbourhood of Tezpur, for an extension of 10 acres this year.

II.—The Growth in Plantations of Ficus elastica.

37. The first plantation of *Ficus elastica* in Assam extended over 18 acres, and was started on the right bank of the Kulsi river, about 30 miles west of Gauhati in the Kamrup District, adjoining the experimental Teak and Sissoo plantations, which are the head-quarters of the officer in charge of the Gauhati forest division.

38. The experiment became a failure from reasons explained in last year's Report on Caoutchouc Plantations, but the old lines have been replanted and 17 acres added, which makes the total area under plant in the Gauhati division 35 acres.

The Kulsi Caoutchouc Plantation.

39. The method of planting adopted in the Kulsi Caoutchouc plantation is the following:—

Lines 20 feet in. width and 50 feet apart are opened out in mixed plain and savannah forest, and the trees are planted out on these lines at distances of 25 feet.

40. The plants in this plantation were examined by me on the 26th of April, and the countings showed 2 per cent. of failures, which were filled up the same day. Nothing could surpass the healthiness and vigour of the young trees, whose only enemies are the deer, which has made fencing necessary, but the plants will soon have grown beyond the reach of them.

41. Besides this, 30 acres have been prepared for planting during last cold season, but, as the weather up to the end of April was very dry, the planting is only being done now, and these 30 acres have, therefore, not been brought on the register of area of Caoutchouc plantations before the end of the financial year 1874-75.

42. This locality was not chosen for the first plantation because it was well suited, but on account of the season being far advanced, and there was a Forest Officer on the spot to look after it.

43. Kamrup is, compared with other districts in Assam, dry, and it is not intended to have Caoutchouc plantations on a large scale in this district on this account, since the yield will be proportionately small.

44. All land in the Kulsi plantation reserve, not suited for timber plantations, will thus be made use of for Caoutchouc plantations, which will make the total area about 100 acres. This will furnish a field for experiments in tapping, and enable us hereafter to draw comparisons between the yield of Caoutchouc from trees in this district and that from the more favorably situated Charduar plantation at the foot of the Himalayas in the Darrang District, 18 miles north of Tezpur.

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The Charduar Caoutchouc Plantation.

45. The latter plantation extended over an area of 180 acres in the year 1873-74.

The plants in this plantation were examined by me on the 21st of April 1875, and the countings made all through the plantation showed $3\frac{1}{2}$ per cent. of failures.

In addition to this 140 acres more have been got ready, and another 60 acres are in course of clearing for plants.

None of this area has, however, been planted, since the rains will be more suited for this work, and no additional area has, for the above reason, been brought on the register of area of Caoutchouc plantations before the end of 1874-75.

46. The method of planting adopted in the Charduar plantation was the following:—

Lines 20 feet in width and 100 feet apart were opened out through lower hill forest, and trees were planted out on these lines at distances of 50 feet.

47. The width of the lines proved insufficient as soon as the rains set in, and the excessive shade and drip from the trees on either side of the line proved injurious, and in many cases fatal to the plants.

48. The plantings on split stumps of trees and in earthenware rings, placed with the widest opening on stumps, was suggested by the Chief Commissioner, and proved very successful in low situations, counteracting the excessive wet on the ground; but vigorous growth was not insured until more light was admitted.

49. All the lines of last year's plantation were, therefore, opened to forty feet in width, and the effect on the young trees has already been most beneficial, so that, although it is only the commencement of the growing season, nothing could surpass the vigour and healthy appearance of the trees, and, so far as the planting on lines opened out through the forest goes, it certainly is a perfect success.

50. The ground on these lines is not cleared except just around the plants, but the opening out of bridle-paths has become necessary to save time in going over the plants, since frequent inspection is the only way to prevent any vacancies remaining in the plantation.

51. The growth of low jungle or scrub in these lines has neither been such as to necessitate subsequent clearing.

52. The opening out of these lines to double the width has, however, doubled the cost of this, the chief work in the plantation, and since the daily increasing demand for labor on the Tea gardens, has induced the planters to pay absurdly high wages, thus making local labor, which only is suited for the Caoutchouc plantation work, scarcer every day.

Planting in the forks of Trees.

53. For this reason experiments have been started to plant the young trees in strongly-made cane baskets and to place these in the forks of trees.

54. Only seedlings are used for this mode of planting, since they soon form thick tuberous roots, and thus become more fit to combat the comparative dryness to which they are exposed in the tops of trees in the dry season.

55. The first of these were planted on the 25th January in trees near the nursery, and on the 21st April they looked everything that could be desired.

56. This mode of planting would only necessitate a small bridle-path being opened through the forest instead of lines forty feet in width, and is estimated to reduce the cost of the creation of Caoutchouc plantations on a large scale, including survey, formation, conservation, roads, buildings, and salaries, from Rupees 10 to Rupees 5 per acre.

57. The only objection to this plan is the difficulty of inspection, and without constant examination of the plants no satisfactory results can be reckoned on.

This I hope to overcome by having every line numbered, and every tree on which a Caoutchouc plant has been placed, marked. These lines will then be regularly gone over at least once in two months, and the result placed on record in the plantation journal.

After a year or two, the plants will be sufficiently large to render the climbing of trees unnecessary, which latter will be the only difficult task in the examination of the plants, but it is considered of such importance during the first year or two, as to justify high pay to the men who have to do this work.

58. It is hoped to bring during these rains 50 acres under cultivation in this way, and thus to obtain results on as early a date as practicable.

59. This mode of growing *Ficus elastica* it is intended to introduce only on the ground of economy and the growing scarcity of labor, and not because it is believed that this tree grows naturally as an epiphyte only, for trees which germinated on the ground are said to be not at all rare in the Akha Hills north of the Charduar plantation, and the Caoutchouc collectors, who go beyond the British boundary into these hills, will have it that such trees, although few in number, grow larger than those which commenced life as epiphytes between the branches of other trees.

Ficus elastica grown in the Soil.

60. I myself have never seen but one tree which had undoubtedly germinated on the ground, but then the want of light in the dense forests along the foot of the hills renders it impossible for

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trees to grow in this way, as proved by our seed experiments.

61. The only one specimen above mentioned which ever I saw had a true stem, cylindrical in shape, and measured 16 feet in girth 30 feet above the ground; but this had not prevented the tree from throwing out great numbers of aerial roots descending from branches 50 feet above the ground.

Some of these aerial roots measured 6 to 8 feet in girth at distances of 20 feet from the stem, and had established themselves firmly in the ground like the tree itself.

62. Neither does *Ficus elastica* in Assam, if planted in the ground, remain smaller or more destitute of large aerial roots than trees which grew first as epiphytes, as has been stated.

63. The measurements given below will show that the epiphytic growth of a *Ficus elastica* is not by any means essential, for, after all is done and said, this tree is only epiphytical in early life for a comparatively small number of years, after which it has its roots in the ground like any other tree.

64. Natives will have it that the aerial roots of young *Ficus elastica* in the Charduar reach the ground in the third year.

65. To corroborate the above, and to ascertain the distances at which the young Caoutchouc trees should be planted, inquiry was instituted regarding the age of the largest tree planted in Tezpur, and measurements made of this tree, which were as follow:—

Age of tree	32	years.
Height of tree...	110	feet.
Diameter of crown	140	„
Circumference of the centre mass of aerial roots surrounding the stem	70	„
Distance of outermost aerial roots from stem	30	„

There were over a hundred aerial roots, the five largest of which measured each respectively 6 feet, 4 feet, 4 feet, $3\frac{1}{2}$ feet, and 3 feet in girth 5 feet above the ground.

66. These measurements show the size and rapid growth of *Ficus elastica* planted in the ground in Assam, which, in the forests at the foot of the hills, must be even much greater than in the station of Tezpur, and is not less than that of epiphytic trees.

Distances for Planting.

67. As the roots spread out in the soil very near the surface to a distance of 150 feet and more, and form a thick network, it is considered close planting will seriously interfere with the free development of the roots and growth of the young Caoutchouc trees, and unless vigorous growth is ensured, no yield of Caoutchouc can be expected.

68. It is, however, intended to have the trees on all the area at present under cultivation planted at 25 feet distances in the lines instead of 50 feet, so as to have a number of young trees available for experiments in tapping to ascertain the yield from young *Ficus elastica.* It is thus intended to have every alternate tree killed by tapping at the time they begin to interfere with the growth of those it is intended to let grow to maturity.

69. The tree measured in Tezpur is exceptionally large, and to all appearance not only healthy but luxuriant; but for all this it yielded next to no Caoutchouc when permission was given by the proprietor to one of the traders in the bazaar to tap it.

70. This latter fact I do not attribute, as Dr. Schlich, the Conservator of Forests, Bengal, and Dr. King, the Superintendent of the Calcutta Botanical Garden, do to the fact of the tree having originally been planted in the ground, but to the locality in which it grows, which will be further remarked on under the head of yield of *Ficus elastica.*

Selection of Localities for Plantation.

71. The above fact of this luxuriant tree in Tezpur not yielding any Caoutchouc, and similar results of experiments in tapping trees in Gauhati made by me, point to the great necessity for a most careful selection of the localities for Caoutchouc plantations, and no greater mistake could possibly be made than to start plantations of *Ficus elastica* in any part of Bengal with the view of producing Caoutchouc, as suggested by Dr. Henderson, or to draw any conclusions regarding the way it should be cultivated from the appearance of trees planted in Bengal, for, although the trees will grow in any part of Bengal, Caoutchouc there would be next to none.

72. To insure a sufficiently large area of land being maintained as forest for Caoutchouc plantations, proposals for the reserving of an area of about 140 square miles in the Charduar, north of Tezpur, were submitted in Spring 1873, and are now under the consideration of the Chief Commissioner.

73. Experiments of planting *Ficus elastica* on a small scale in grass land are carried on by order of the Chief Commissioner in the neighbourhood of Tezpur, to obtain results hereafter regarding the yield of Caoutchouc from trees in this locality, as compared with the yield from trees at the foot of the Himalayas.

74. Ten acres were thus brought under cultivation by planting at distances $25' \times 25'$; no vacancies exist, and the plants, though small as yet, look very healthy.

75. Nahor (*Mesua ferrea*) has been planted between the young Caoutchouc trees.

76. Close planting in this case is resorted to, to bring about on as early a date as possible

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a perfect cover on the land, and thus extirpate the grass, insure the formation of vegetable mould, the moisture of the soil, and the surface sufficiently open to atmospheric influences, which conditions are insured in the Charduar plantation by leaving part of the forest standing.

Conditions required for the growth of *Ficus elastica*.

77. The general conditions for the healthy and rapid growth of the young trees of *Ficus elastica* as detailed above are these:—

(1*st.*) Perfect drainage about its roots and looseness of soil so as to admit the air readily, the geological composition of the soil not affecting the trees as long as the above conditions are fulfilled; but it should not be gravel or sand, since all Caoutchouc collectors state that it produces much smaller quantities even in the best localities.

(2*nd.*) Plenty of light without decreasing the moisture of the air by the admission of it.

(3*rd*) Heat and moisture combined, or what is commonly termed a close and steamy atmosphere.

78. The districts in Assam suited for Caoutchouc plantations are—

1. The Darrang District.
2. The Naga Hill District.
3. The Lakhimpur District.

79. The south of the Cachar District would be suited, but the comparatively unsettled state of the Looshai boundary would not render such a measure for the present at least advisable.

80. None but the moist evergreen forests along the foot of the mountains should ever be chosen for Caoutchouc plantations.

81. In the Kulsi plantation no separate establishment has been entertained for this particular work, but the Caoutchouc plantation is debited with one-fourth of the cost of the whole plantation establishment.

82. The area of the Caoutchouc plantation at the Kulsi at the end of 1873-74 was 35 acres, on which an expenditure of Rupees 377-13-0, or Rupees 10-12-8 per acre, had been incurred up to that date.

83. The area got ready for planting last year at the Kulsi is 30 acres, which, together with improvement and conservation of the plantation of 1873-74, cost during the financial year 1874-75 Rupees 605-14-0, or Rupees 15-2-1 per acre for two years, which has become so high on account of the nursery, the greater part of which, and especially the seed nursery, was destroyed by floods last year, and the great difficulty in procuring suitable branches for cuttings in this locality.

Establishment, Area, and Cost of the Charduar Caoutchouc plantation.

84. The establishment entertained at the Charduar Caoutchouc plantation, including the small experiment near Tezpur, was the following:—

1 Mohurir on	Rs. 14	per mensem,	for 9	months.
1 "	" 20	"	" 2	"
1 Watcher on	" 7	"	" 9½	"

85. The area of the Caoutchouc plantation at the end of 1873-74 was 180 acres, on which an expenditure of Rupees 415-3-6, or Rupees 2-4-10 per acre, had been incurred up to that date.

86. The area planted in 1874-75 was ten acres near Tezpur, and 140 acres have been got ready for planting at the Charduar plantation.

87. In addition to this, all the lines of last year's plantation have been opened out to double the width, bridle-paths been opened out along each line, the plants been fenced in, and large nurseries for cuttings and seedlings been prepared, the cost of which, during the financial year 1874-75, was in the abstract as follows:—

	RS.	A.	P.
Demarcation	43	11	0
Formation	2,084	3	0
Protection from fire	24	12	0
Improvement and conservation...	505	6	3
Fencing and enclosing	193	9	6
Roads and bridges	205	10	0
Buildings and offices	607	2	0
Salaries	232	10	0
Total...	3,896	15	9

or Rupees 13-1-0 per acre, for two years, which is also above the average cost on account of buildings, roads, and bridges, as well as the large nurseries which had to be prepared at starting.

88. For all this the cost of the Caoutchouc plantations, even at Rupees 10 per acre as now estimated, is very small compared with other plantations.

89. The cost per acre if planted in baskets to be placed in trees, is estimated at Rupees 5, but as the experience gained in the latter mode of planting is as yet small, this estimate must be considered subject to correction hereafter.

Supervision of the Caoutchouc Plantations.

90. The head-quarters of the divisional Forest officer in the Gauhati division are on the Kulsi plantations, and that of the Officer in charge of the Tezpur division, at the Barolighat, a distance of 5 miles from the Charduar plantation, so that in either case competent supervision throughout the year is given to this work.

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III.—Yield of Ficus elastica.

Yield in different Localities.

91. Amongst the different conditions on which the yield of the *Ficus elastica* depends stands foremost the locality in which it is grown.

92. When first inquiring in 1869 from the Caoutchouc collectors into the yield of the tree in different localities, I was informed that it would yield most in the hills, next best immediately at the foot of the mountains, and that this yield diminished according to the distance from the hills the Caoutchouc tree was growing in the open country or even on the banks of the Brahmaputra, where, I was informed, it would yield little or none.

93. It was in accordance with this information that the Charduar plantation was started, as being in one of the most favorable localities in Assam.

94. Subsequent and frequent inquiry has been made on this subject, and the collectors now say they get more at the foot of the mountains than in the hills.

95. Whichever is the correct statement, the difference in quantity yielded by trees growing in the plains along the foot of the mountains and those growing on the lower hills is but trifling, if not entirely imaginary; whilst, as the forests along the foot of the mountains are left and the open country is entered, the quantity diminishes very rapidly until on the banks of the Brahmaputra, in the stations of Tezpur and Gauhati, as mentioned above, trees which had not been tapped before were tapped without yielding any Caoutchouc worth speaking of, thus substantially proving the above information to be correct.

Yield from Stem and Roots of *Ficus elastica.*

96. The next question raised during the last year is, will *Ficus elastica* yield equally if tapped from the stem or aerial roots? On this point, in Assam at least, no doubt ever existed.

The collectors state that there is no difference whatsoever, but that if they dig up the ground and thus get at the roots in the ground, that the latter will give more.

97. My own observations are that Caoutchouc collectors will go to the utmost extremity of the branches at the risk of their lives to procure Caoutchouc, and that the quantity will only vary according to the place first attacked; if this is commenced at the upper branches, the greater quantity will be obtained from there; if at the roots in the ground, as I regret to say is done in most cases, the largest quantity will be obtained from these.

98. I have always looked on the formation of aerial roots as one of the greatest advantages in favor of the cultivation of *Ficus elastica*, since the facility with which these are thrown out enables this tree to recover itself much faster than other Caoutchouc trees with only a single stem.

99. I do not wish to affirm by the above remark that I do believe in surplus milk, or that a vigorous tree receives through one stem less sap than through many stems; on the contrary, a tree in health will always produce as much sap as it requires, no matter if through one or many stems or roots; but if by tapping the actions of roots or stem are interfered with or rendered impossible, *Ficus elastica* will, by making new roots, adjust this quicker than a Caoutchouc tree with a single stem only.

100. On the other hand, the great number of aerial roots enable the collector to overtap a *Ficus elastica* more than any other Caoutchouc tree, as the surface exposed is greater, but this can be easily controlled in the plantations when the trees are ready for tapping.

101. If the *Ficus elastica* is planted in the ground, or germinates in the fork of a tree, it makes but little difference to the size or number of aerial roots formed after, especially if grown, as is done in the Charduar plantation, where part of the forest is left standing between the lines of Caoutchouc trees, by which an excessively steamy atmosphere is ensured; in such localities the aerial roots will always correspond in size and number to the size of the tree.

102. A single-stemmed *Ficus elastica* without any aerial roots of large size has never been seen by me in Assam, except in stations where every boy takes a pleasure in hacking about the tree wherever he can get at it.

103. The size which *Ficus elastica* will reach if planted in the ground (in Assam) has been exhibited in the measurements given above of the oldest planted tree in Tezpur.

Yield per Tree of *Ficus elastica.*

104. After a year or two, when the natural trees in or about the Charduar plantation have recovered, we shall be able to collect accurate information as to the yield per tree.

105. The information we have about the yield of trees and climbers producing Caoutchouc in other parts of the world is so vague, that even after we have ascertained the yield of *Ficus elastica* we shall not be able to draw comparisons.

106. It has been stated that a tree of *Castilloa*, 18 inches in diameter, will give 20 gallons of milk; this certainly *Ficus elastica* will not give, but I must admit that my knowledge of vegetable physiology does not permit me to believe this of *Castilloa* either, at least not oftener than once.

107. As to the *Urceola elastica*, yielding Caoutchouc in the third year, *Ficus elastica* will

do this also; but for all that I consider it would be very imprudent to tap trees before the age of 20 years.

Time for tapping.

108. The most favorable time for tapping certainly is January, February, and March, when the milk runs abundantly, and is superior to that collected in the rains.

Varieties of *Ficus elastica*.

109. There are two varieties of *Ficus elastica*, the "Bogi-Bur" and the "Shika-Bur," the former of which is said to be slightly superior, but the difference is not such as to render it advisable to confine planting to this variety only.

Manufacture and Collection of Caoutchouc.

110. There is no doubt room for improvement in the manufacture and collection of Caoutchouc, and experiments have been started with a view to insure this.

111. The task which Forest officers in Assam have set themselves to perform, however, is, in the first instance, to propagate and grow *Ficus elastica*, which has been done most successfully so far, considering the past year was only the second year of these experiments; and the manufacture of superior Caoutchouc will be tried during the coming season as far as the exhausted state of the trees permits.

The Cachar Climber yielding Caoutchouc.

112. The climber in Cachar giving Caoutchouc was searched for and examined; good botanical specimens could not be got at the time, but it is hoped will be procured during the coming year.

The quality of the Caoutchouc is extremely inferior, there being no elasticity at all in the substance.

(Signed) GUSTAV MANN,
Offg. Dy. Conservator of Forests, Assam.

APPENDIX.

From Dr. W. SCHLICH, Conservator of Forests, Bengal, to the Secretary to the Government of Bengal, dated Darjeeling, 26th May 1875, No. 87C.

In reply to your endorsement No. 2013, dated 17th July 1874, forwarding letter No. 736, dated 7th July 1874, from the Government of India, Department of Revenue, Agriculture, and Commerce, I have the honor to submit, for His Honor the Lieutenant-Governor's information, the following remarks regarding the raising of seedlings of *Ficus elastica* in nursery beds, as carried out by Mr. Gamble, Assistant Conservator of Forests, in charge Darjeeling Division.

2. At Bamunpokri nine nursery beds were prepared, three with common garden soil, three with broken bricks, and three with charcoal, and all intersected by irrigation trenches, thus keeping the soil thoroughly moist by percolation. The seed was collected in September 1874, and sown in that month and in October, partly in whole figs, and partly crumbled up by the hand. The beds were then shaded by thatch, raised two feet above the ground on the south, and three feet on the north, and the sides were closed in with mats which could be removed at will.

3. From four to six weeks after sowing the seeds germinated profusely, best of all in the garden soil, next best on the broken bricks, and last, though still pretty well, on the charcoal; they have thriven well, and are now up to five inches high, with leaves up to two inches long. On the whole, therefore, it may be said that little or no difficulty has been experienced in raising seedlings of the *Ficus elastica*. When of a sufficient size they will be planted out, some in the ground, and some on useless forests trees, and I hope to report further on the result of the experiment after another year.

Endorsed by the Government of Bengal, dated 10th June 1875, No. 1937.

Copy submitted to the Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, for information, with reference to his No. 736, dated 7th July 1874.

Order thereon, 30th September 1875, No. 1443.

Communicated to the Board of Revenue and to the Inspector of Forests for information.

(True extract.)

(Signed) L. A. CAMPBELL,
Under-Secretary to Government.

TASAR SILK.

Proceedings of the Madras Government, Revenue Department, 10th January 1876.

Read the following Extract from the Proceedings of the Government of India in the Department of Revenue, Agriculture, and Commerce, (Fibres and Silk), dated Calcutta, 23rd November 1875, No. 5/156-165:—

Read the following papers on the subject of the development of an industry in the silk of the tasar and other wild silk-spinning worms of India:—

Letters to the Government of Bengal and the Chief Commissioner of the Central Provinces, Nos. 244 and 246, dated the 26th and the 28th September 1872.

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Letters from the Chief Commissioner of the Central Provinces, Nos. 1234-63 and 1733-83, dated the 12th April 1873 and the 28th May 1873.

Despatch to the Secretary of State, No. 6, dated the 23rd June 1873.

Despatch from the Secretary of State, No. 14, dated the 11th March 1875.

Despatch from the Secretary of State, No. 32, dated the 17th June 1875.

Read also the following correspondence relative to the experiments conducted by Captain Coussmaker in the matter:

Letter from the Government of Bombay, No. 4128-113C., dated the 24th October 1872.

Letter from the Government of Bombay, No. 4197-153, dated the 26th December 1872.

Letter from the Government of Bombay, No. 2754, dated the 23rd September 1874.

Letter from the Government of Bombay, No. 1520, dated the 19th May 1875.

Letter to the Government of Bombay, No. 55, dated the 4th June 1875.

RESOLUTION.

For some years past the attention of Government and of private individuals has been given to the possible development of a profitable industry in the silk of the undomesticated silk-spinning worms of India, the most important of these being the tasar (*Antheræa Paphia* and other varieties).

2. The worm abounds in most forest tracts in India. Mr. Geoghegan (page 110 of his Account of Silk in India) says that it is found "in the Sub-Himalayan tracts almost throughout the extent of the range, through the hills from Assam to Chittagong, in the Sundarbans, everywhere in the great belt of hill and forest inhabited by the Santal, the Kol, the Khond, and the Gond, in the Western Ghauts, and in portions of the Madras Presidency." Captain Coussmaker says he has found it in the jungles between Tanna and Ankola (Bombay Presidency), a distance of 330 miles, and he has reared the worm successfully in the three districts of Satara, Kolhapur, and Dharwar. The worm also abounds in the tract between the Burrakur and the Soane (Bengal Presidency), a tract of country measuring 200 miles in length by 80 miles in width, and it is largely distributed in the districts of Gurdaspur and Sialkot and in the Jummoo territory.

3. Hitherto the worm has ordinarily been confined to the jungles, but Captain Coussmaker's and other experiments seem to prove that it is quite capable of domestication. Its habitat, however, is undoubtedly the jungle tracts, and, owing to this and to the collection of the cocoons having hitherto been left entirely to certain classes of aboriginal tribes inhabiting the forests, there are no accurate data on which to found an estimate of the supply available. It seems clear, however, that even now the supply is more than equal to even a greatly increased demand, and that this supply is capable of indefinite extension.

4. At present there is practically no demand in the European market for this silk, except in the shape of fabrics prepared in this country, and for these the demand is limited. Whether it is possible to create a sufficiently large demand to remunerate outlay on the part of Government is a question which cannot yet be positively answered, but the probabilities are in favor of the creation of such a demand if certain difficulties, hereafter to be described, can be overcome.

5. In 1872 Captain Coussmaker, an Assistant Superintendent in the Bombay Revenue Survey, who had for some years given his attention to this matter, had some tasar silk reeled off and woven into fabrics, under his superintendence, in the Dharwar jail. Samples of these fabrics were sent by the Government of Bombay to the Government of India, and were sent by them for report to Calcutta, where the samples, especially a twilled kind, were much approved. In connection with the report on these samples, it was stated to the Government of India that certain difficulties connected with the reeling and dyeing of the silk, which had hitherto operated to prevent the creation of a regular and extensive trade in tasar silk, had recently been overcome in Italy. Copies of the papers were sent to the Governments of Bombay and Bengal and the Central Provinces for information. The Chief Commissioner of the Central Provinces having asked to be furnished with particulars of the processes of the reeling and dyeing said to have been discovered, Her Majesty's Secretary of State for India was requested, in despatch No. 6, dated the 23rd June 1873, to cause inquiries to be made in England and the large centres of silk manufacture on the Continent, and to communicate the results. While this inquiry was being originated by the Government of India, Captain Coussmaker went on leave to England, proposing, with the concurrence of the Government of Bombay, to devote some time to inquiries into the subject.

6. A reply to the despatch to Her Majesty's Secretary of State has now been received, and the result of Captain Coussmaker's inquiries has also been embodied in a letter to the Government of Bombay, of which a copy has been communicated to the Government of India. The outcome of the researches made is as follows:—

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From the papers received from the Secretary of State it appears—

(i)—That a person at Lyons, unnamed, holding the position of chief chemist to the firm of Guinon and Picard, manufacturers of chemical products at Lyons, has discovered how to reel and dye tasar silk. The reeling process, he states, is thoroughly inexpensive. He has submitted samples of the results of his process to Mr. Haden, British Vice-Consul at Lyons, and this gentleman pronounces them to be "really remarkable," adding that "he has reason to believe that if experiments carried on under inspection resulted in similar success, the Government of India would possess the information it desires." The dyeing process the inventor declares to be absolutely successful, "except as to one point, which he thinks could be satisfactorily dealt with." The inventor has patented his processes in France, and would require similar protection in Italy, Great Britain, and India, before doing anything for the Government of India. He declines to come to India, and he expects a fixed sum (not stated) for communicating and practically demonstrating all he knows about the matter.

(ii)—The Vice-Consul at Lyons has also been in communication with a person named Chalon, a worker in velvet at Beaurepaire in the Department of the Isère, who professes that he can reel off a thread a thousand metres (nearly 1,100 yards) in length from the unpierced cocoon. This person also requires a fixed sum before imparting the secret of his process. The Vice-Consul adds that this is probably the process to which the Government of India referred to in its letter to the Secretary of State.

(iii)—The Consul at Genoa has been in communication with, amongst others, Mr. Mylins, a silk manufacturer at Buffalora, who has tried experiments in a small way, but without much success. He says, however, that no serious trials have yet been made with tasar, and expresses his willingness, if the Government of India will send him a parcel of cocoons, to make a series of experiments with them. The Consul says that Mr. Mylins's standing and reputation are unexceptionable, and his works on a large scale.

(iv)—The Consul has also heard of an invention patented jointly by Mr. Gaddum of Latour and Mr. Bosshardt of Turin for carding the silk produced from difficult cocoons. It appears that tasar cocoons have been successfully treated by this process.

(v)—Mr. Thomas Wardle, a silk dyer of great experience, states that he has discovered a way of dyeing tasar silk in brilliant colors, and of giving it the lustre of Chinese silk. Mr. Wardle is ready to continue his experiments and also to teach his process to natives of India. It is not stated whether this gentleman is ready to come to India, and on what terms, but the Secretary of State has asked to be furnished with samples of dye-stuffs, and of tasar and other wild silks, so that Mr. Wardle may be in a position to continue his experiments. Local Governments have been asked to supply these samples.

7. Captain Coussmaker's inquiries in regard to reeling in England have been unsuccessful. Messrs. Mason and Company, silk spinners, have bought this and other wild silks as "waste," and have carded it, and Messrs. Lister and Company, of Bradford, are ready to take a large supply of pierced cocoons for the same purpose, converting them into spun silk, but no English manufacturers seem to have attempted, or to be disposed to attempt, the reeling of the unpierced cocoon. But Captain Coussmaker succeeded, by the good offices of Chevalier G. Jervis, Conservator of the Royal Industrial Museum at Turin, in inducing an Italian spinner to try experiments, with the result that the silk can, it is stated, be reeled at a cost of something over £2 per cwt. of cocoons. If this is actually the case, the rate is extremely low, but there is probably some mistake in the figures. The firm, which is not named, say that the reeling can be done much cheaper eventually after perfection of the process and adaptation of the machinery to this particular kind of silk. The specimens thus reeled were valued in London at from 1*s*. to 2*s*. per lb. more than the samples reeled at Dharwar by Captain Coussmaker, and these were in Calcutta thought very good, and in London were considered equal to anything of the kind sent from India and China.

8. In addition to the results thus obtained, reference has been made direct to the Government of India by Mr. Jules Deveria of Rampore, Baulea, who states that he has discovered a process of reeling tasar in an ordinary filature. The sample of the skein of the silk which he reeled under this process was not entirely successful, and a report obtained on it by the Bengal Chamber of Commerce was unfavorable.

9. With the preliminary information thus obtained, the Government of India is in a position to consider what should be the next steps to be taken in view to the development of a new industry, which may perhaps take, to some extent, the place of the trade in the manufacture of silk from domesticated worms. This latter industry, of which Bengal is the principal seat, is in a languishing condition, and seems, indeed, doomed to gradual but inevitable decay. Even, however, if the Bengal silk-trade were to revive and again assume the flourishing position it once held, it is quite clear that in an almost purely agricultural country like India the introduction of new manufacturing industries is desirable, and that it is of great importance to

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find external and internal markets for produce of which India possesses a monopoly, but which is not now utilised.

10. In stimulating the production of tasar silk, the State may aim at supplying either the local or the European markets with manufactured silk, or at creating an export trade in the raw material with Europe. But before any great step in this direction can be taken, it is necessary to make further cautious and preliminary detailed inquiries; for, besides the two difficulties already mentioned, both of which will probably soon be overcome, there are still others of a somewhat more formidable character perhaps, which tend to leave in doubt the question whether the silk of the tasar worm may be profitably employed on a large scale.

11. The two great obstacles to which attention has hitherto been directed are—

1*st*.—Defective reeling in connection with the difficulty of properly dissolving the natural gum exuded in spinning by the worm.

2*nd*.—Difficulties in dyeing.

As regards the first, owing to the defective way in which the silk is reeled, the thread is not continuous, and retains more or less of the peculiar cement (compared to plaster of Paris by Captain Coussmaker) which the worm exudes, the presence of this cement detracting from the appearance of the fibre, rendering it unfit for fine fabrics, and preventing it from taking fine colors. It has, however, it is understood, been proved by actual experiments made within the last year, that by the use of a simple alkaline solvent, and by keeping the basins of water in which the cocoons are plunged when being reeled off at a temperature of about 200° Fahr. or a little higher, all difficulties of reeling, so far as the mere unwinding of the silk is concerned, disappear.

In respect to the second, there seems to be little doubt that no real effort to dye the silk has been thoroughly made, and that if attention were turned to the subject by competent persons, the difficulties in question could easily be overcome.

12. The other and more serious difficulties which will require to be overcome appear to be, 1*st*, the manner in which the cocoons are naturally distributed. It is true that the supply is inexhaustible, but owing to its distribution over a vast area, a thousand square miles will, in the natural condition of things, seldom probably yield as many cocoons as a single hamlet in Italy produces of the domesticated worm; and although the cocoons can be obtained for nothing, yet as the search for them has to be made over enormous areas, if large quantities, such as a filature would require, are to be obtained (and it is only during one brief period of the year when the trees the *Antheræa* chiefly haunt are shedding their foliage that any successful search can be made) it appears doubtful whether, under these conditions, the wild cocoons would not cost more than cocoons obtained from domesticated worms.

13. It is true that the tasar worm can be entirely domesticated, but if regularly domesticated like the *Bombyx mori*, the produce obtained would perhaps be more costly than that of the *B. mori*, inasmuch as many worms would be required to produce an equal value of silk, and if the manufacture of silk from the *Bombyx* worm is not remunerative, as seems sufficiently proved by the state of the industry in Bengal, *a fortiori* the tasar worm will not yield any profit.

14. Again, the tasar may be half domesticated, a certain number of moths being kept for laying purposes yearly, the eggs hatched and the young worms turned out to feed themselves, thus avoiding the heavy expense (especially during the later stages) of constantly supplying fresh leaves to the worms; but here also it appears doubtful how far it will be possible to concentrate the worms or protect them from birds or other enemies if they are at all abnormally numerous on any group of trees. Under these circumstances, it appears probable that it is only in a nearly wild condition that the tasar can prove remunerative.

15. The second difficulty (which is even greater than the first) depends upon an inherent defect in the filaments spun by the worm. It must be remembered that the thread of the tasar silkworm is spun from a double spinnaret, and that these filaments are not parallel, lying close side by side, but are spirals touching each other only at the exterior points of their curves, but united by the natural gum in and with which they are exuded, and it is on this spirality that the elasticity of the silk depends. Now, in reeling the silk it is necessary that the spirals should be ground well into each other so as to form an even round thread, but it is doubtful whether the filaments can be brought to bear the amount of *croissure* necessary to produce the round thread, and without this it will be impossible to provide an article of export which will be acceptable in a European market.

16. Granting that this difficulty may be surmounted, it appears certain that it can only be done under skilled European supervision, aided by the best mechanical appliances in properly appointed filatures. It will be hopeless to expect that such reeling as is required to fit tasar for manufacture into superior fabrics for the European market can be done by natives working in their own homes. If success is to be expected in the manufacture of tasar silk, the operations of villagers must be confined to

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the production or collection of the cocoons. The reeling processes, if manufacture is to be attempted at all in India, must be carried out in properly organised filatures, possessing means and appliances, machinery and systematic supervision, such as are wholly unattainable by villagers in their own homes. Thus, for the proper reeling of tasar, where the basins must be kept at a heat of from 200° to 205° Fahr., nothing but steam can keep them uninterruptedly at precisely that temperature which is essential not only to enable the silk to unwind, but to keep the gum still retained by the filaments at just such a temperature when they reach the *croissure* as to be soft and yielding, but not so soft as to be worked out.

17. The conditions of successful manufacture being such, there does not appear to be any prospect of reviving the reeling of silk as a village industry, whether the silk is produced for local consumption or export. Under no circumstances would there appear to be any reasonable prospect of any proximate material enlargement of the local demand. If, therefore, anything is to be done for the country in silk, whether for the domesticated or the tasar worm, it must, it seems to the Government of India, be in the way of increased exports, either in the shape of cocoons or as raw silk so reeled as to be acceptable to the European purchaser.

18. In regard to tasar, many of the most important data necessary towards forming a satisfactory conclusion in the matter are altogether wanting, and the Government of India are of opinion that the subject should be systematically investigated, so as to set at rest all doubts which now exist.

19. Towards the attainment of this end, the first thing in regard to which it is requisite to obtain definite information is the exact cost at which the raw material can be collected or produced in commercial quantities, both in its wild and semi-domesticated state. The next points on which further information is requisite are the cost of reeling off the silk, the amount of silk there is in proportion to cocoon, the degree in which the filaments will bear *croissure*, and the consequent ultimate value of the silk in the market.

20. With this object in view the Government of Bombay and the Chief Commissioner of the Central Provinces will be asked to collect cocoons in order that careful experiments may be made with them in some of the leading filatures in this country, and also under the direction of Her Majesty's Secretary of State in some of the leading filatures in France and Italy. Careful and full reports on all the points noted above will be asked for, and all reasonable expenses incurred in these experiments will be reimbursed. The Secretary of State will be asked to have experiments efficiently carried out to test the dyeing capacities of this silk, the material furnished from the experiments to be made in the filatures in France and Italy being used for the purpose. His Lordship will also be asked to cause experiments in carding to be undertaken with pierced cocoons.

No. 5-156.

ORDER.—Ordered that a copy of this Resolution be forwarded to the Government of Madras, with a request that the Government of India may be favored with any proposals or suggestions which His Excellency the Governor in Council may have to make in the matter.

Ordered, also, that a copy of this Resolution be forwarded to the Financial Department for information.

(True Extract.)

(Signed) A. O. HUME,
Secretary to the Govt. of India.

Order thereon, 10th January 1876, No. 27.

Communicated to the Board of Revenue for any remarks they may have to offer.

(True Extract.)

(Signed) W. HUDLESTON,
Chief Secretary.

MISCELLANEOUS.

SEED AND SEED-SOWING.

THE cost of seed even of a really good quality is one of the least expensive items in the charges incurred for raising a crop, and yet, small as the cost is, there are few cultivators that do not grudge the expense. They will sow any seed possessing the ordinary characteristics of the seed of the variety of crop they wish to produce, provided that they have it already of their own producing, or can buy it at a low rate. Thus, to save half a rupee, or a rupee at the most, per acre, they will risk the value of the labour on cultivation, the loss of the crop, &c. The difference, in the return, obtained from a crop produced by good seed, and from a crop produced by bad seed may be 25 per cent. in favour of the former; say, Rupees 5 per acre, certainly a large return for the extra rupee spent in procuring the good seed. But this is not all, for the sickly crop produced by inferior seed or by old seed is always more liable to be

injured by blight, by weather, and by insects, than a healthy crop the produce of well-grown, well-developed seed. By good seed, we mean not only that the seed must be large and well formed, true to its kind, regular in colour, fresh and free from all mustiness, &c., but that it must have been produced under favourable conditions: that is, must not have been grown, year after year, on the same land, or on land of the description and quality of that on which it is intended to be sown, and must, when tested, yield at least 75 per cent. of vital grains. Our cultivators do not fully appreciate the benefits that arise from a change of seed. Instead of year after year sowing the produce of their own soil, they should endeavour to obtain seed by exchange, or by purchase, from some neighbour who farms soil of a different kind to that farmed by them; or what is even better, obtain it from some distant part of the district, in which the soils are of a different character, but in which the climate is somewhat similar to their own. Under a very good system of agriculture, it is possible to get fair results by sowing on the same land year after year the produce of each preceding harvest, but the practice is not to be commended when it is possible to get a fair sample of seed from a soil differing from that on which it is to be sown—heaviest and plumpest seed should always be selected—provided it also possesses the other qualities that characterise good seed. The fact is, we should deal with our seed as with our breeding stock: select the parent which possesses the qualities we wish to find in that to be produced. European agricultural seeds have greatly improved in quality during the last 10 or 15 years, and this, to a considerable extent, is due to the greater care and skill now employed in their cultivation. The result is chiefly to be attributed to *selection:* that is, to the best grains in the best ears or heads only having been for years used for seed. In this way, superior qualities can be stamped with some degree of permanency on any variety of seed. But when we have secured the seed with these higher qualities, it becomes all the more necessary that the circumstances to which it must be exposed should be those of a favourable character. A seed elevated in this way will yield worse results when opposed by unfavourable circumstances than seed of the same kind in the unimproved state. It is a well-ascertained fact that plants, like animals, can in time adapt themselves to circumstances which at first they may dislike, and which at that time may be actually injurious to them.

The seeds of plants that have gradually become habituated to unfavourable agricultural conditions, will grow and give fair results under circumstances that might prove quite fatal to the prospects of a crop from seed which had not been so trained. But we may have obtained seed which meets the conditions we have laid down, and yet find that we have not secured all the conditions necessary to ensure, even to a moderate degree of certainty, a good result for all our care. We allude here to the danger of obtaining seed tainted by disease. It is a well-ascertained fact, that many of the diseases from which our crops suffer are to be traced to the seed, either from the germs of disease having been actually present in the seed, or from the seed having been the produce of plants which had been attacked by disease, and whose vigour and constitution had thereby been injured. It is to meet evils of this kind that the European farmer employs washes and steeps, in which he prepares his seed for sowing. We think it would be a wise act on the part of the Indian farmer were he to adopt the same practice. These washes are solutions of sulphate of copper, of chloride of lime, of chlorine of soda (common salt), of sulphate of iron, of sulphate of soda, of arsenic, &c. The arsenic solution is objectionable as a steep for grain, from the danger of putting large quantities of so poisonous a substance in the hands of ordinary agricultural labourers, and from the danger of the prepared grain finding its way amongst the food of the live stock. Sulphate of soda (globular salts) possesses some merit, but as the grain which has been dressed by it must be dried by lime powder, a great deal of trouble is produced. Sulphate of iron (green vitriol) is useful, but is not effective in all cases, while it is very little cheaper than the more effective blue vitriol. Chloride of soda has little effect on seed infected by the spores of parasitical fungi; chloride of lime is destructive to the spores of some fungi that attack farm crops, but not to all.

Sulphate of copper is, without doubt, the most effective and most useful of all the chemical salts used in the preparation of seed pickles; it destroys the spores of all the fungi that attack farm crops, while the vitality of the seed is in no way injured by its action, and not only as regards efficacy is it the most valuable of all the saline substances used, but it is the easiest to apply. It is used in the following way:—take ¼ of a pound of the salt and dissolve it in a gallon of hot watter. After allowing it to cool it is fit for use: the solution thus prepared is sufficient for about 200 lbs. of ordinary field seed. Before applying the solution, spread the grain equally over a hard earthen floor to a depth of about 6 inches, then sprinkle it with the solution, at the same time mixing the whole thoroughly with a shovel until all is uniformly damped; it will dry in 2 or 3 hours, when it will be fit for sowing. We have used a much stronger solution of blue vitriol than this, not only without injury to the seed, but with benefit: as a general rule old seed requires less of the solution than new seed. It is the

safest plan to subject all seed to the action of this pickle, even though the crop which produced it was quite healthy, as it may have met with the spores of the fungi in the granary or store-room, and may thus be in no better state than if produced by unhealthy plants. When we say that all seeds should be subjected to the action of a solution of sulphate of copper before sown, we refer only to the ordinary agricultural seed; some seeds may be too delicate to resist uninjured even its moderate action, but the farmer should experiment and decide this for himself. In many European countries, in Scotland especially, the use of the blue vitriol solution as a pickle for seed, has effected an immense amount of good in that country. Less than 30 years ago, it was usual to lose by backball and other fungoid diseases from 1 to 8 bushels of grain per acre, while at the present day, in the best farm districts, it is difficult to find a single diseased head of grain. To some extent this is due to other causes, but the result is chiefly to be attributed to the general use of blue vitriol in pickling the seed.

But all the foregoing goes for little or nothing if the seed is not placed in the soil in a proper manner; and to this we would invite particular attention, for of all the evils that result from the wretched agricultural practice followed in this country, not the least is the loss produced by bad sowing, especially by sowing too thickly. Indeed, from thick sowing alone, we have no hesitation in asserting our belief that on at least two-thirds of the arable land of India an annual loss is experienced equal in amount to the full rent demanded by Government on dry land, and equal to one quarter of the rent demanded for wet land. We have known instances of native cultivators sowing as much as 300 lbs. of paddy seed on each acre of land to be cropped. The quantity of paddy seed generally broad-casted for a crop is not so much as this: it varies between 100 and 200 lbs. per acre, a quantity still far in excess of the amount needed, for some of the best crops of country paddy we ever produced under broad-cast sowing were raised from less than 50 lbs. of seed per acre. The waste of seed thus caused by the low agricultural practice of the country, represents in the total a heavy national loss. But this is far from being the only bad result that arises from inefficient sowing, for after the ill effects produced by bad seed, there are no influences more active for evil during the growth of a crop, than those which result from thick sowing. In the crowds of plants produced, each struggling for mastery over the other, we have a most productive source of injury. Each plant is wasting its energies in the attempt to secure the means of existence, and in the endeavour to resist the ill effects produced by the close proximity of its neighbour, energies which ought to be directed to meet its wants during a healthy progressive development. At first sight, it would appear that the right practice in sowing is to place each seed in the position to produce the maximum result, equi-distant from each other, so that each may get its full share of soil, air, and light; but there are other considerations to be taken into account, *viz.*, the weeding and tillage of the crop during its growth, operations which can only be performed at an economical rate when the crop is cultivated in lines, but the distance can readily be adjusted, and the seed so sown in the lines to secure each plant in the position to produce the largest result with the least expenditure of field labour in its cultivation. Broad-casting seed is only justifiable under very peculiar circumstances, as a hasty season, scarcity of labour, damp soil, an uneven surface, or a surface covered by rock, trees, and other impediments. In broad-cast sowing, the seed is placed irregularly in the soil, and there is always a considerable waste from seed being left uncovered, or by being covered too deeply. Hence to provide against a deficiency of plant from this course, it is necessary to sow a little more seed than would otherwise be needed. Thick sowings on rich or highly manured soil, produce a close luxuriant growth of prematurely developed plants, which generally become matted and laid low before harvest. Crops in this state are invariably attacked by mildew, under the influences of which their yield is greatly lessened. In rich and poor soils alike, thin sowing is beneficial, not too thin on poor soil, though on very highly manured soils seed can scarcely be too thinly sown. The desideratum is to produce a good standing regular crop, through which air and light may get. As a rule, thick-sown crops require an abundant supply of manure to enable them to perfect their development. The competition for support must be especially provided for if the soil is not in a high manural condition. But rules cannot be laid down for all conditions of soil, of crop, of climate, &c.; each farmer should experiment and ascertain for himself, what quality of seed of each variety best suits his soil and climate.—*The Indian Agriculturist*, January 1876, p. 6.

THE TOWERS OF SILENCE.

If the question were asked "What is the most novel and extraordinary sight that the Prince of Wales has seen in India, and that in which he himself showed the greatest amount of interest?" I am certain that hundreds of conjectures would be hazarded in England, and perhaps in India too, without any one arriving at even a near approach to the truth. Gay spectacles there have been in plenty, unlike anything seen in Europe; assemblages of

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bejewelled chiefs, elephant processions, elephant hunting, and elephant fights; but the most curious thing, and the thing unseen before, was of a totally different character, and one that a young Sovereign, still in the heyday of life, would hardly have been expected to care to look upon. It was a sight for Hamlet rather than for Troilus, and that it did inspire our Prince with a strong feeling of interest is another proof, if proofs were wanted, that his nature is akin to high and serious things, and moves above the scenes which are so attractive to less earnest minds. In the south-western corner of Bombay Island the low plain swells up rather suddenly into a hill 200 feet high, from the top of which the whole city, and almost the whole island, are visible to the north and east, and to the west and south the wide sea. It is a spot which, without a doubt, presents the finest view of what has been called one of the choicest scenes of the world, and might well, therefore, have been selected for the gayest villas of the richest inhabitants; but it is a fact that, till the Prince came to India, no European, except it may have been by stealth, had set foot upon it. None, certainly, were privileged to examine this strange place, and if any came, which may well be doubted, at most they could but cast a furtive glance around them, and steal away again. Two centuries have passed since, in this then most desolate and savage spot, a grey tower was raised, no sign of life or man's habitation, but an abode of death, and so well called the Tower of Silence. As time went on four other towers were raised around the first; the Parsees, to whom these towers belonged, grew in wealth and influence; the whole hill became theirs; and a high encircling wall, with iron gates, barred access to any but those of their own nation. Up to the Prince of Wales's visit I do not only say *that no stranger had visited this spot;* I say more, *that no one ever expected to see it.* The Parsees are not a proselytising sect; they would not accept proselytes though they came to them voluntarily. There is a veil of mystery and mysticism over much that the Parsees do, and they do not love to talk with strangers about their sacred things. Next to the strangeness of the Prince's visit itself the strangest thing which has happened during that visit is the easy way in which the curtain which has so long been held up by the Parsees round their tombs has been dropped by them. The Prince wished to see the Towers of Silence; Sir Bartle Frere wrote to the governing body of the Parsees that the Prince wished it, and lo! it was done. It may be quite true that the fire-worshippers had found that detractors had made use of the mystery in which they shrouded their funeral rites to invent many calumnies against them, but still I do not think that a desire to set themselves right with the world would alone have induced them to raise the veil. It would never have been put aside but for the Prince's wish to have it removed; and so, if his visit to India should have no other result, it will have in this brought about one of the most curious changes that India has witnessed. The thing came about so suddenly that the secretary of the Parsees found himself, so he told me, standing under the wall of the principal Tower of Silence, close to the vast stone slab on which the corpses are deposited, explaining from a model the interior economy of the structure to his Royal Highness and a group of his suite before he had had time to prepare his dress or his thoughts for the occasion. The Prince showed the greatest interest and asked many questions, and he left his Parsee informant as much impressed with his affability and condescension as he could himself have been with the strangeness of what he saw and heard about the Parsees.

As, next to the Prince and his attendants, I was the first European to visit the Towers of Silence, and have their construction explained to me from the model, it will be well, perhaps, to preface what I have to say about Madras with an account of the last remarkable thing I have seen in Bombay. I may begin by saying that at the foot of the hill on which the Towers of Silence are erected there are two institutions which do infinite honour to the Parsees, and which deserve to be inspected by every visitor of Bombay. These are the Dharamodhs, or Hospices for the Poor Zoroastrians of Persia and those of Bombay. I saw 78 Persian Parsee women, 73 children, and 58 adult males in the Persian Hospice, and delighted they were to be talked to in their own language and to be able to tell their grievances to one who could understand and sympathise with them. In the Hospice for the Poor Parsees of Bombay I saw 30 men and eight women, and I thoroughly convinced myself that they are treated with the most tender charity, which ministers to all their wants. Their food is good; they have clean rooms and a beautiful garden, and they live in one of the most salubrious spots in the whole island. Khurshedgi Ardasir and the sons of Nardeuiji Sorabji Parak founded these most beneficent institutions, and their names deserve *volitare per ora virum.*

Passing on, you may ascend the hill of the Towers of Silence by a long succession of terraces and flights of steps from the south, or you may drive in by a carriage-road at the northern entrance, and read, as you pass the gate, the inscription, which tells you that the costly road was made at the expense of the son of the first baronet, Sir Jamshidje, in honour of his father's memory. After driving a quarter of a mile you proceed on foot up a long rocky ascent till you come to a gate with the warning, "None but Parsees may enter!" But the Prince

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had unsealed the entrance, and in company with the courteous secretary of the Parsee Governing Committee I went in, and found a little way on my right a stone chapel or house of prayer, where the Parsees who attend the funerals perform their devotions. From this spot there is a most enchanting and unequalled view over Bombay, which every European visitor should see if he can. While I sat here a model of a tower of silence was brought and explained to me; the same identical model which had interested the Prince, and the explanation was given by the same expositor. As I listened two corpses, one of which was that of a mobed or priest, were brought up the rocky ascent, each followed by about 100 Parsees in white garments. The biers were carried by four men, and two others followed, who alone are allowed to enter the towers. The Parsees who walked in the procession had their garments linked two-and-two, and this has a mystic meaning. The towers are circular, and are so well built that the oldest has stood for 200 years without requiring to be repaired. They are formed of huge stone slabs well cemented together, and the largest cost 30,000*l.* If it may be assumed that the four other towers cost on an average 20,000*l.* each, we should have a tenth of a million invested in these buildings alone. Add that Sir Jamshidje gave 100,000 square yards of land and defrayed the expenses of a road, and some idea may be formed of the cost of the whole cemetery. In the circular external wall there is but one aperture, about 5½ feet square and 18 feet from the ground, and to this the carriers of the dead ascend by a flight of steps, and there take in the corpse. The outside wall is from 25 to 40 feet high, according to the inequalities of the ground on which the tower is built. Inside is a circular platform, depressed gradually towards the centre, where is a wall of about 10 feet in diameter. The surface of the platform consists of flutted grooves laid out in three series, with a circular path surrounding each series, to which communication is obtained by a straight path leading from the aperture in the outer wall to the well in the centre of the tower. This straight path intersects the circular paths, and is about two and a half feet broad, and then three feet. The corpses are deposited in the grooves, those of men occupying the first series, those of women the second series, and those of children the third. All the bodies are absolutely nude, to fulfil the saying "Naked came I into the world, and naked shall I go forth;" and in half an hour from the time they are put in the grooves every particle of flesh is stripped from the bones by the numerous vultures that inhabit the spot. I saw at least 200 of these filthy birds congregated round the two bodies which had just been brought in, and in half an hour all but a very few had retired from the feast gorged, and scarce able to flap their way to the surrounding trees. The skeleton is left to blench in sun and wind till it becomes quite dry. Two carriers of the dead then enter with gloves on their hands, and provided with bags, with which they carry the bones to the central well, where they are cast and crumble into dust. There are perforations in the wall of the well through which any moisture, caused by rain or otherwise, passes and descends into two drains at the bottom of the building, where it passes through charcoal and so becomes disinfected and inodorous before it reaches the sea. There is a ladder in the well by which the carriers of the dead descend when it is necessary to clear the perforations from obstructions. The dust in the well accumulates so slowly that in the 40 years during which the largest tower has been used it has risen only five feet. There was no smell from the towers when I was there, and I suppose there was none when the Prince visited the place, or he would not have remained a whole hour as he did.

The origin of the whole practice is no doubt the veneration with which the Parsees regard the elements. Fire is too pure to be polluted by committing corpses to the flames. Water is almost equally venerated, and so, too, is mother earth. Hence this strange system has been invented, by which it is supposed none of the impurities of the corpse can infect the elements, at all events directly. And everything that can be thought of is done to dispel the gloomy thoughts which some parts of the process naturally engender. The chapels are situated in a beautiful garden, where those who attend the funerals may sit and enjoy the beauty of flowers and flowering shrubs. Those who deposit the corpses in the towers go through a purification, and the garments they wear when in the Tower of Silence are put away in another tower, erected for the sole purpose of receiving them, and there they smoulder away. I saw this tower so filled that the wind was stirring the topmost clothes on the very brim of the building. For the rest of the Parsees believe in the resurrection, but their creed is that the body raised will be a spiritual and a glorified body."—*Standard.*

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